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SAN DIEGO, CALIFORNIA:

Orcutt Seed and Plant Company:

Catalog of Cacti.

CACTI.

Many people who have been acquainted only with the prickly pear and the cholla cactus of the plains—perhaps to the detriment of their epidermis, will be surprised to learn that over one thousand valid species exist, to which more than three thousand names have been applied by botanists and horticulturists.

Having purchased Mr. E. J. Buell's cactus garden, and nearly the whole of Mr. A. H. Alverson's stock of cacti and succulents, together with importations of more than 20,000 cacti from Mexico, we can now offer a great variety at moderate prices. We quote prices herewith on the varieties now in our garden, and will be pleased to correspond with those desiring others, which we aim to collect or import.

We desire to exchange for books and plants not in our garden.

CACTACEAE.

Tribe ECHINOCACTEAE.

Calyx tube produced beyond the ovary; stem covered with elongated tubercles or ribs, rarely leafy (except when young).

Karl Schumann, in his monograph, recognizes 21 genera, including *Cereus*, *Pilocereus*, *Cephalocereus*, *Phyllocactus*, *Epiphyllum*, *Echinopsis*, *Echinocereus*, *Echinocactus*, *Meocactus*, and *Leuchtenbergia* in this tribe, in the order named, making a separate tribe for *Mammillaria*, *Pelecyphora*, and *Ariocarpus*. *Pilocereus*, *Cephalocereus*, *Echinopsis*, and *Echinocereus* are better kept as sections of *Cereus*; *Epiphyllum* as a section of *Phyllocactus*; *Ariocarpus* (*Anhalonium*) as a section of *Mammillaria*. His other genera are divided into 3 tribes, *Rhipsalideae*, of 3 genera—*Pfeiffera*, *Hariota* and *Rhip-*

salis (best treated as one); *Opuntieae*, of 3 genera—*Opuntia*, *Nopalaea* and *Pterocactus* (the 2 latter of doubtful value); and *Peireskieae*, including *Peireskia* and *Maihuenia*.

Genus ANHALONIUM Lemaire.

A. AREOLOSUM Lem.

A. ASELLIFORME Web.

A. elongatum S. is prismaticum.

A. fissipedum Monv. is sulcatum.

ANHALONIUM FISSURATUM E.

Anhalonium Engelmanni Lemaire Cact 42 (1868).

Living Rock, found in Texas and Mexico. "Upper and exposed part of tubercle triangular in outline, convex, carinate and almost smooth below, convex and variously fissured and thereby verrucose above, sharp and crenate on the edges."—Engelmann.

Plants 50 cents to \$5.00 each.

A. furfuraceum Wat. is prismaticum.

A. jordanianum Reb. is *Echinocactus Williamsii*.

A. kotschoubeyanum Lem. is sulcatum.

A. Lewisii Hennings. is *Echinocactus Williamsii*.

A. PRISMATICUM Lem.

Simple, top flattened or depressed, more rarely hemispherical, center densely tomentose, 4-8 inches in diameter, 1-2 (rarely 4) inches above ground, the large root 4-5 inches below the surface with few coarse fibrous roots; tubercles triangular, acute with a cartilaginous tip, or obtuse, of an ending in a minute depression or tomentose areola, spineless, the keel often with a strong shoulder, 1-3 inches long, often as wide, axils with long dense wool, upper surface smooth or often more or less roughened; flowers white to rose, 1 inch long, sepals brownish; fruits clavate, scarlet. Chow-tee of the Indians, or peyote (a name more commonly restricted to *Echinocactus Williamsii*). The minute areolae are sometimes placed on the upper surface of the tubercles near the end, or often absent. San Luis Potosi (Orcutt 2807), where numerous specimens exhibit all the variations necessary to connect several alleged species. The type of Watson's *Mammillaria furfuracea* was col-

lected at Carneros Pass, Coahuilla (Pringle 2550).

Plants 50 cents to \$3.00 each.

A. pulvilligerum Lem. is *prismaticum*.

A. retusum S. is *prismaticum*.

ANHALONIUM RUNGEI Hildm.

Sandy loam, in the foot of high mountains, Coahuilla (C. Runge).

A. SULCATUM S.

A. TRIGONUM Web.

A. turbiniforme Web.

A. williamsii F. is *Echinocactus Williamsii* Lem.

Genus **APOROCACTUS** Lemaire.

A. Baumannii Lem. is *Cereus Baumannii* Lem fide KS.

A. colubrinus Lem. is *Cereus Baumannii* fide KS.

A. flagelliformis Lem. is *Cereus flagelliformis* Mill fide KS.

Genus **ARIOCARPUS** Scheidw.

Karl Schumann revives this name in his publications, but we prefer to retain the name *Anhalonium*, which has been in universal use among botanists and horticulturists alike, for more than fifty years.

A. aselliformis Web. is *Anhalonium aselliforme*.

A. fissuratus KS. is *Anhalonium fissuratum*.

A. Kotschubeyanus KS. is *Anhalonium sulcatum*.

A. retusum Scheidw. is *Anhalonium prismaticum* Lem.

A. sulcatus KS. is *Anhalonium sulcatum*.

A. trigonum KS. is *Anthalonium trigonum*

A. Williamsii Voss. is *Echinocactus Williamsii*.

Genus **ASTROPHYTUM** Lemaire.

A. asterias Lem Cact 50, based on *Echinocactus asterias*.

A. capricorne Hort. based on *Echinocactus capricornis*.

ASTROPHYTUM MYRIOSTIGMA Lem.

The Bishop's Hood; an odd and beautiful spineless plant from Mexico, resembling a piece of carved stone.

A. prismaticum Lem. Cact 50, error for *myriostigma*.

The following *Mammillarias* named by Dr. Coulter are offered provisionally under his own names.

CACTUS ALTERNATUS Coulter.

"Subglobose, 10 cm. in diameter, simple; tubercles long (15-20 mm) and spreading, with woolly axils: radial spines 3, rigid and recurved, 5 mm long; central spines 3, very stout and much recurved, 20-30 mm long, alternating with the radials; all ashy colored and often twisted; flower and fruit unknown: Type, in Herb. Coul-

ter. San Luis Potosi (Eschauzier of 1891)."—Coulter Cont U S Nat Hb 3:95

Plants 50 cents to \$5.00 each.

CACTUS BRUNNEUS Coulter.

"Obovate-cylindrical, 3 by 6 cm, simple, tubercles ovate, grooved to the base, 5-6 mm long, with woolly axils: radial spines 11-15, spreading, rather rigid and brownish (lighter with age), 8-10 mm long; central spine much larger, 20 mm long, hooked; flower and fruit unknown. Type in Herb. Coulter. San Luis Potosi (Eschauzier of 1891)."—Coulter Cont U S Nat Hb 3:117.

Plants 50 cents to \$5 each.

CACTUS DENSISPINUS Coulter.

"Globose, 7.5 cm in diameter, simple; tubercles short, with woolly axils: radial spines about 25, erect-spreading, slender but rigid, yellow (brownish to black with age), unequal, 8-10 mm long; central spines 6, a little longer (10-12 mm) and straight, more rigid and darker, black tipped; seeds obovate, reddish-brown, 2 mm long. Type in Herb. Coulter. San Luis Potosi (Eschauzier of 1891). Very easily distinguished by its dense, erect spines, which so completely cover the plant as to give it the appearance of a large chestnut burr."—Coulter Cont U S Nat Hb 3:96-97.

Mammillaria castanoides, M. Wegneri, M. densispina, and M. fuscata, are probably all identical with this species.

Plants 20 cents to \$1.00 each.

CACTUS ESCHAUZIERI Coulter.

"Depressed-globose, 3 cm in diameter, simple; tubercles broader at base, 6-8 mm long, with naked axis: spines all pubescent; radials 15-20, with dusky tips, the lateral 10-12 mm long, the lower weaker, shorter and curved, the upper shorter, solitary central spine reddish, slender, somewhat twisted, usually hooked upwards, 15-20 mm long; flowers red (?); fruit reddish (?), ovate, about 10 mm long; seeds reddish, oblique-obovate, 1.2 mm long, pitted, with subventral hilum. Type in Herb. Coulter. San Luis Potosi (Eschauzier of 1891)."—Coulter Cont U S Nat Hb 3:104.

Plants 50 cents to \$1.00 each.

CACTUS MACULATUS Coulter.

cm, simple; tubercles cylindrical, 6 by 8 cm, somewhat caespitose; tubercles ovate, terete, 10 mm long, grooved to the base, with naked axils: radial spines 10 or 11, straight and spreading, rigid, blackish (becoming ashy with age), black-tipped, 12 mm long; central spine large, more or less spotted, erect, 25-35 mm long; flower 13 mm long, pinkish; fruit unknown. Type in Herb. Coulter, San Luis Potosi (Eschauzier of 1891)."—Coulter Cont U S Nat Hb 3:117.

Plants 50 cents to \$2.00 each.

CACTUS PRINGLEI Coulter.

"Globose (?), 5 cm in diameter; tubercles short-conical, about 6 mm long, with very woolly axils; radial spines 18-20, setaceous-bristly and radiant, 5-8 mm long;

central spines 5-7 (usually 6), stout and horny, more or less recurved, spreading, 20-25 mm long; all straw-colored, but the central darker; flowers deep red (darker, even brownish outside), 8-10 mm long; fruit unknown. Type, Pringle of 1891 in Herb. Gray."—Coulter, Cont U S Nat Hb 3:109.

Plants \$1.00 to \$5.00 each.

Genus CEPHALOCERUS Pfeiffer.

C. CHRYSOMALLUS KS.

Erect, branching like a candelabra, 10-15 feet high, stems 3-6 inches in diameter; young plants with 17 obtuse ribs and deep intervals, 12-13 ribs in older plants and more obtuse, areolae $\frac{1}{2}$ inch apart; 10-12 radial spines, slender, straw-colored, centrals 4-5, the lower one the longest, the upper portion of the older or floriferous stems supplied with numerous ciliary white spines, especially abundant on the side where the flowers are produced; flowers 2 inches across, 3 inches long (including the ovary); about 25 long narrow scales on ovary with 6-12 fine white hairs $\frac{1}{2}$ -1 inch long in the axils, ovary apple green; petals about 10, 8-10 mm broad, nearly 20 long, acute, white; sepals equally numerous, brownish white; style $2\frac{1}{4}$ inches long, whitish, nearly equalling the petals; filaments white, anthers an eighth inch long and pale yellow. Flower deeply embedded in a mass of persistent hairs an inch long and of a snowy white—tinged with yellow occasionally at the tips. Fruit nearly globose, $1\frac{1}{2}$ inches long, dull purple with a bluish bloom; remains of flower persistent; the minute scales and hairs abundant or nearly absent; outer skin $\frac{1}{4}$ inch thick, dull purple, the edible pulp bright magenta, rather insipid, sweetish, seeds black. Vieja, or Old Woman cactus of the Mexicans. States of Puebla and Oaxaca, Mexico (Orcutt 2649, 2679).

Plants \$1.00 to \$20.00 each.

C. COLUMNA-TRAJANI KS.

Erect, 15-20 feet high, 2-3 short branches slightly divergent from the main stem a few feet from the ground: 5-7 radial spines one-fourth to three-fourths inch long, 1 central $\frac{1}{2}$ -2 inches long, rarely a shorter central or radial above; radials laterally disposed except the lowest, all ash black. Ribs 11-13 in young plants, obtuse with shallow intervals. Te-tetcho of the Mexicans, who describe the fruit as sweet and edible, the flower as red. States of Puebla and Oaxaca, Mexico (Orcutt 2706).

Plants \$2.00 to \$5.00 each.

C. Hoppenstedtii KS. is Pilocerus Hoppenstedtii Web fide KS.

C. MACROCEPHALUS Web.

C. MELOCACTUS KS.

C. SENILIS Pf.

Genus CEREUS Haworth.

"Flowers about as long as wide or elongated. Scales of the ovary distinct, with naked or woolly axils, or almost obsolete and the axils spiny. Berry succulent, covered with spines or scales or almost

naked. Seeds black, without albumen. Embryo short and straight or curved or hooked; cotyledons usually contrary to the sides of the seed.—Plants of all sizes, low or climbing or erect, sometimes enormous; spine-bearing areolae on vertical ribs. Flowers from the older or, at least, fully formed parts of the plant, not from any preformed areola, but arising through the epidermis just above the bunches of spines; some open only in sunlight, others only at night, others again are not thus influenced. Fruit often edible, sometimes of very large size."—E.

Subgenus EUCEREUS. "Prismatic or cylindrical, mostly branching; flowers usually longer than wide; stigmas whitish; seeds obovate, usually smooth or pitted; embryo with foliaceous curved cotyledons."—E.

CEREUS ACULEATUS Otto.

CEREUS ALAMOSSENSIS Coulter.

Sina spinosa of Sonora; 2-8 feet high, 2-10 branches from the base with joints 1-4 feet long, flexuous or decumbent, often forming arches and rooting at the joints, and thus spreading over wide areas, sometimes 100 feet in diameter or more; ribs about 7, slightly tuberculated. The bright red flowers slightly resemble those of C. flagelliformis.

Plants \$1.00 each.

CEREUS AMBLYOGONUS G. Don.

CEREUS AMECAENSIS Heese.

CEREUS ANDALGALENSIS Web.

CEREUS AREOLATUS Mueh.

Andes, South America.

CEREUS ARMATUS Otto.

CEREUS ASSURGENS Gris.

West Indies.

CEREUS AUREUS KS.

CEREUS AZUREUS Parm.

CEREUS BARBATUS Otto.

CEREUS BAUMANNII Lem.

Paraguay Republic, South America.

Variety COLUBRINA KS.

Variety FLAVISPINA KS.

Variety SMARAGDFLORA Web.

CEREUS BAXANIENSIS Karw.

Mexico.

CEREUS BENECKII Eh.

Aborescent and branching after the habit of Cereus geometrizans, 6-7 ribbed; areolae $\frac{1}{4}$ inch apart, woolly, bearing 8 radial spines $\frac{1}{2}$ inch or less long, and 1 central 1-3 inches long, curved upward, all ash colored; fruit globose, $\frac{1}{2}$ inch in diameter, dull purple; remains of flower usually deciduous leaving a large ash-colored scar; seeds large, 36-80 in each berry. The beta-zo-vo of the Indians. In aspect of plant and fruit this closely resembles the garambullo (Cereus geometrizans). Near Oaxaca, Mexico (Orcutt 2709).

Plants \$1 to \$5 each.

CEREUS BERTINII L'Her.

Paraguay Republic, South America.

CEREUS BLANKII Pos.**CEREUS BOECKMANNII** Otto.

West Indies.

CEREUS BONARIENSIS Sw.**CEREUS BONPLANDII** Parm.

Paraguay Republic, South America.

CEREUS BRACHIATUS Gal.

Tehuacan, Puebla, Mexico.

Cereus bradtianus C. is *Opuntia cereiformis* Web fide KS.**CEREUS BRANDII** H Angl.**CEREUS BRIDGESII** S.

Bolivia, South America.

CEREUS CAESIUS Otto.**CEREUS CANDELARIUS** Hort.**CEREUS CANDICANS** Gill.

Argentine Republic.

CEREUS CAVENDISHII Monv.**CEREUS CHALYBAEUS** Otto.

Argentine Republic.

CEREUS CHILENSIS Colla.

Chile, South America.

CEREUS CHIOTILLA Web.

Arborescent, 20 feet high, branching freely a foot or so above the ground, the older branches 6 inches in diameter, the tips of the branches $2\frac{1}{2}$ inches in diameter with densely woolly ovate or shield-shaped areolae, bearing the terminal flowers and fruit. The tree often of an umbrella shape, or the interlocking branches curving or twisting in any other than a symmetrical manner. Ribs 6-8, acute, with sharp intervals; areolae $\frac{1}{4}$ inch across, $\frac{1}{2}$ inch long, nearly or quite contiguous; 1 stout, terete, ashy, central spine $\frac{1}{4}$ -2 inches long or less—often 2 or 3 short centrals above $\frac{1}{4}$ inch long, erect; radials about 12, $\frac{1}{4}$ inch long, curved inward, all but the lowest laterally disposed, spines all nearly white when young. Called 'tiotilla' by the Indians, who gather quantities of the fruit for the markets of Tehuacan in June for 1 cent. Fruit $1\frac{1}{4}$ inch diameter, slightly longer, remains of the flower persistent; color dull dark red, with 25-30 thin semi-transparent triangular scales—the base and sides equal—about three-eighths of an inch; pulp dark purple, with numerous black seeds. State of Oaxaca, Mexico (Orcutt 2648, 2666). Flower $1\frac{1}{2}$ inches across, bright lemon yellow (27 Je 1902).

Plants 50 cents to \$5.00 each.

CEREUS CLAVIFORMIS R-K.**CEREUS COERULESCENS** S.

Argentine Republic.

CEREUS COLUMBINUS Otto.

An erect-growing Cuban plant, night-blooming, the fragrant white flowers 6 inches across.

CEREUS COLUMNARIS Lodd.**CEREUS COMETES** Scheidu.**CEREUS CONCINNUS** Hge.**CEREUS COQUIMBANUS** KS.

Chile, South America.

CEREUS CORYNE Otto.

Argentine Republic.

CEREUS COSSIRENSIS Tineo.**CEREUS CRENATUS** Lab.*Cereus Cumengei* Web, is gummosus.**CEREUS CURVISPINUS** Bert.**CEREUS DAMARCARO** Hge.**CEREUS DECORUS** Lodd.**CEREUS DONKELAERI** S.**CEREUS DUMORTIERI** S.

Mexico.

CEREUS DUSSII KS.

Guadeloupe Island, West Indies.

CEREUS EBURNEUS S.

Jalapa, Vera Cruz, Mexico.

CEREUS EMORYI E.

San Diego's Velvet Cactus. This is one of the best-known of California cacti, the slender, thickly-set yellowish spines giving it a peculiarly beautiful appearance. The spines on the young joints are shorter, soft and flexuous; the flowers are yellowish, followed by a small edible fruit.

Plants 20 cents to \$1.00 each.

CEREUS ERUCA Brandegee.

"Prostrate, very rarely branched, 13-ribbed, 3-4 feet long, 3-4 inches in diameter; rooting from the under side of the older growth, decaying at one end and growing forward at the other, generally in patches of 20-30, probably originating from a common center; areolae 4-6 mm in diameter, separated about the same distance; spines about 20, stout, ash-colored, less than an inch long, the exterior cylindrical, the interior stouter, angular, somewhat and the lower central one much flattened, more than an inch long, angular, strongly reflexed. Common on the sand of Magdalena island and about San Jorge, Baja California. Its local name is 'chilenola.' The manner of growth, with uplifted heads and prominent reflexed spines, gives the plants a resemblance to huge caterpillars."—Brandegee, Cal ac pr sr 2, 2:163, t 7.

CEREUS EUCHLORUS Web.

Brazil, South America.

CEREUS EUPHORBIOIDES Haw.

Brazil, South America.

CEREUS EXTENSUS S.**CEREUS FASCICULARIS** Meyen.

Peru, South America.

CEREUS FLAGELLIFORMIS Haworth.

The well-known whip-cord or Rat's-tail Cactus, so useful in hanging baskets or for grafting on columnar species; the bright rose-colored flowers are extremely attractive.

Variety **LEPTOPHIS** KS.**CEREUS FORBESII** Otto.

Argentine Republic.

CEREUS FUNKII KS.**CEREUS GEMMATUS**

CEREUS GEOMETRIZANS Mart.

Arborecent, 20 feet high or more, assuming somewhat an umbrella form from its manner of branching; joints mostly short, thick; ribs 5 or 6, acute when young, with sharply defined intervals—on old plants often very obtuse, bearing large woolly spineless areolae; stems of young growth 3 inches in diameter, areolae $1\frac{1}{2}$ inch apart, woolly—in age the enlarged bulbous bases of the spines are in close contact, covering the areolae completely (or spineless!); radial spines 3-5, $\frac{1}{4}$ - $1\frac{1}{2}$ inches long, central spine $1\frac{1}{2}$ inches in maximum length, straight or twisted, all stout, angled, ashy black, woody; central spine sometimes absent, lateral radials usually the longer, very variable. Plant smooth, bright apple green or glaucous, known as the garambullo. Fruit rarely over $\frac{1}{2}$ inch long, half as great in diameter, or globose, attached to a small tomentose areolae, remains of flower often persistent, when deciduous leaving a small round scar; epidermis usually smooth, with 1-6 tomentose areolae bearing minute scales (more rarely bearing in their axils a more minute spine), purple (sometimes glaucous) with purple pulp; fruit bursting irregularly at maturity. As many as 14 fruits were seen growing from one areola; one rib of 11 areolae on a joint of 5 ribs bore 36 fruits, only 1 of the areolae without fruit, and this is frequent on the hundreds of branches—old and young alike, almost to the trunk. Seeds large, black, 63 from one berry. Fruit ripening in June, 1902, in the state of Oaxaca, Mexico (Orcutt 2670); in July near San Luis Potosi (2809), where its growth is smaller, and large quantities are collected by the inhabitants and eaten fresh, or dried; Tehuacan (2630).

Conrole made this the type of his genus *Myrtillocactus*. *Cereus cochal* Orcutt, from Lower California, is closely allied, and treated as a variety by some authors. Plants \$1.00 to \$5.00 each.

CEREUS GHIESBREGHTII KS.
Mexico.

CEREUS GLAUDESCENS Tweed.
CEREUS GLAZIOVII KS.
Brazil, South America.

CEREUS GLYCIMORPHUS Orcutt.
Echinocereus glycimorphus Foerst.

CEREUS GRANDIFLORUS Haworth.
Miller, Gard Dictionary, ed. n 11. "The night-flowering cereus has gained a fame which entitles it to prominent notice, and plants might well be included in every garden, for its flowering is a source of interest to the least observant persons."—Castle.

CEREUS GRANDIS Haw.
CEREUS GREGGII Engelm.

Gregg's night blooming cactus occurs in the arid regions of Southern Arizona, New Mexico, Texas, Chihuahua and Sonora, and is notable for its large tuberous root and slender inconspicuous stems, 1 to 3 or 4 feet high, a half inch in diameter. Flower 6 inches long,

2 inches in diameter, with pale, purple petals, followed by the smooth, oval, acuminate, scarlet fruit, succulent, crowned with the remains of the corolla, and supported by a distinct stipe of a bright crimson.

CEREUS GUMMOSUS Engelm.

The pitahaya agria, or cord-wood cactus, of Lower California, is noted for its large, bright, scarlet fruit, possessing a delicious flavor, pleasantly acid, like a strawberry, the pulp the color of a ripe watermelon, with the small black seeds scattered throughout. The flowers are 4 to 5 inches long, purple, and quite handsome. The stems are 4 to 10 feet high, 3 to 5 inches in diameter, armed with stout angular, blackish spines.

Plants \$1.00 each.

CEREUS HAAGEANUS S.

CEREUS HAMATUS Scheidw.
Near Orizaba, Mexico.

CEREUS HANKEANUS Web.

CEREUS HETERACANTHUS Tweed.

CEREUS HILDMANNIANUS KS.
State of Rio de Janeiro, Brazil.

CEREUS HIRSCHTIANUS KS.

CEREUS HOLLIANUS Weber.

"Branching from base, 4-5 m high and stout, dark-green; ribs 10-12, acute, often oblique, with areolae 2-3 cm apart; radial spines about 12, irregular, 1-1.5 cm long; centrals 3, the lower one 5-10 cm long and deflexed; flowers near the summit, white, 10 cm long; fruit as large as a goose egg, dark purplish-red, bearing wool and spines. Type Weber specimens in hb. Mebotgard. Common about Tehuacan, Puebla. Important for its wood, which forms long, straight rods used for poles in hedges and vineyards."—Coulter, Cont Na hb 3:411.

Plants 50 cents each.

CEREUS HORIZONTALIS Gill.

CEREUS HUASCHA Web.
Argentine Republic.

CEREUS HYLACANTHUS KS.
Argentine Republic.

CEREUS HYPAGAEUS Web.

CEREUS INERMIS P DC.
Near La Guayra, Venezuela.

CEREUS INVERSUS Otto.

CEREUS IRRADIANS Lem.

CEREUS ISOGONUS KS.

Andes, South America.

CEREUS JACQUINII Rebut.

CEREUS JAMACARU P DC.
Brazil, South America.

CEREUS JUSBERTII Rebut.

CEREUS KARSTENII S.

CEREUS KARWINSKII Hge.

CEREUS KERBII KS.

Colima, Mexico.

- CEREUS LAMPROCHLORUS** Lem.
 Argentine Republic.
CEREUS LANCEANUS Hort.
CEREUS LANICEPS KS.
 Bolivia, South America.
CEREUS LEMAIREI Hook.
 West Indies.
CEREUS LEPIDOTUS S.
 Near La Guayra,, Venezuela.
CEREUS LEPTACANTHUS S.
CEREUS LINDBERGIANUS Web.
 Paraguay Republic, South America.
CEREUS LINDMANNII Web.
 Paraguay Republic, South America.
CEREUS LINKII Hort.
CEREUS LONGIFOLIUS Karw.
CEREUS LORMATUS Grus.
CEREUS MACDONALDIAE Hook.
CEREUS MACROGONUS S.
 State of Rio de Janeiro, Brazil.
CEREUS MALLETTIANUS Cels.
CEREUS MALLISONI Hort.
CEREUS MARTIANUS Zucc.
CEREUS MARTINII Lab.
CEREUS MAYNARDII Paxt.
CEREUS MELANURUS KS.
 Brazil, South America.
CEREUS MICRACANTHUS P DC.
CEREUS MONVILLEANUS Web.
CEREUS MULTANGULARIS Haw.
 Andes, South America, probably Peru.
CEREUS MULTIPLEX Hort.
CEREUS NAPOLEONIS R. Graham.
 West Indies.
 Cereus Nickelst Hort. is Cephalocereus
 columna-trajani.
CEREUS NYCTICALUS Link.
 Plants 25 cents each.
CEREUS OBTUSANGULUS KS.
 State of Rio de Janeiro, Brazil.
CEREUS OCAMPONIS S.
 Climbing over trees, fences or houses;
 joints 3-to commonly 4-sided, 1 or 2 to 8 feet
 long, young growth green-ribbed; areolae
 1-1½ inches apart, tomentose, commonly
 7 radials and 1 central spines; radials
 rarely over 1 mm, central rarely 6 mm
 long, stout, straight or slightly curved.
 Stems dark green, 3 inches thick, the ribs
 scarcely an eighth inch thick, strongly
 crenulate, bearing the areolae at the
 summit. Flower white, style 7 inches
 long; stigmata 14, slender, white, nearly
 ½ inch long; ovary globose, an inch in
 diameter, covered with about 10 tubercles
 surmounted with minute scales (the to-
 mentose axils commonly bearing 2 white
 spines); tube of corolla 5-1 inches long,
 bearing 15 or more similar scales with
 tomentose and spiny axils; filaments and
 large anthers apparently white (in dried
 flower), petals narrow, acuminate, 1½
 inches long, extending three-fourths inch
 beyond the filaments. Nopale, or Nopali-
 ta de Cruz, of the Indians; 15-20 feet
 high; cultivated in gardens for its fruit
 (?). States of Puebla and Oaxaca, Mex-
 ico (Orcutt 2709).
CEREUS PAPILLOSUS A. Lke.
- CEREUS PARVIFLORUS** KS.
 Bolivia, South America.
CEREUS PARVISETUS Otto.
CEREUS PASACANA Web.
 Argentine Republic.
CEREUS PAUCISPINUS E.
CEREUS PAXTONIANUS Monv.
CEREUS PERUVIANUS Mill.
 Peru, South America.
 Variety **MONSTRUOSA** P DC.
CEREUS PITAHAYA P DC.
 Brazil, South America.
CEREUS PLATYGONUS Otto.
CEREUS POLYRHIZUS Web.
CEREUS POMANENSIS Web.
 Argentine Republic.
CEREUS PTEROGONUS Lem.
CEREUS PULCHELLUS Pf.
CEREUS QUADRICOSTATUS Bello.
 West Indies.
CEREUS QUERETARENSIS Weber.
 "Tree-like, much branched, 6-8 m high;
 flowers 10-12 cm long; ovary covered with
 triangular fleshy scales which arise from
 a tubercle and bear axillary wool and
 spines; fruit densely covered with bunch-
 es of dark-yellowish or brownish spines
 bulbous at base. Type, Weber specimens
 in hb Mo bot gard. In the vicinity of Que-
 retaro, Mexico, and cultivated along road-
 sides and fence rows."—Coulter, Cont Na
 hb 3:410.
CEREUS REPANDUS Haw.
CEREUS RIGIDISPINUS Monv.
 Probably from the Andes (not Mexico,
 fide KS).
CEREUS RUFERI Hge.
CEREUS RUSSELLIANUS Forb.
CEREUS SALM-DYCKIANUS Web.
CEREUS SAXICOLA Morong.
CEREUS SCHOMBURGKII Otto.
CEREUS SEPIUM P DC.
CEREUS SERPENTINUS P DC.
 Mexico.
CEREUS SETACEUS S.
 Brazil, South America.
 Cereus simonii Hildm., is C. alamosen-
 sis C.
 Cereus sonorensis Runge, is C. alamo-
 sensis C.
CEREUS SPACHIANUS Lem.
 Argentine Republic.
CEREUS SPECIOSIMUS DC.
CEREUS SPECIOSUS KS.
 Variety **COCCINEA** KS.
CEREUS SPINULOSUS P DC.
 Mexico.
CEREUS SPLENDIDUS Paxt.
CEREUS STELLATUS Pf.
CEREUS STELLIGER Otto.
CEREUS STOLONIFER Web.
CEREUS STRIATUS Brandegee.
 Cereus digueti Weber, Mu d'hist nat,b
 1895, 319.
 Apparently not rare in saline soil near
 Batamotal, Sonora, where it is known by

the name sa-ra-ma-tra-ca; the tubers are produced abundantly like small potatoes.

CEREUS STRIGOSUS Gill.

Argentine Republic.

CEREUS SUBFLAVISPINUS Otto.

CEREUS SUBINTORTUS Otto.

CEREUS TENUISSIMUS G. Don.

CEREUS TEPHRACANTHUS Lab.

Bolivia, South America.

CEREUS TETAZO Weber.

"Stout, branching, 10-15 m high; flowers greenish-white, 6 cm long, in clusters of 10-20 from the youngest areolae and without any wool; fruit irregularly dehiscent, exposing the ripe pulp. Type, Weber specimens in hb Mo bot gard. Zapatlan, Jalisco."—Coulter, Cont Na hb 3:409.

CEREUS TETRAGONUS Haw.

State of Rio de Janeiro, Brazil.

CEREUS TORTUOSUS Forb.

Argentine Republic.

CEREUS TRIANGULARIS Miller.

Climbing over rocks and trees, joints 3-sided, $1\frac{1}{4}$ inches in diameter, 1 or 2 to many feet long, curving, the side next to tree or rock nearly flat, the others slightly concave; ribs acute, undulate-tuberculate, bearing in the depressions between the undulations small tomentose areolae $1\frac{1}{4}$ - $2\frac{1}{4}$ inches apart, with 3-4 stout bulbous brown or blackish spines 1-2 mm long. Flowered (28 Je 1902) in the night; flower a foot long; tube of corolla 5 inches long, light apple green, spineless, with about 20 greenish yellow sepaloïd scales, $\frac{1}{2}$ inch wide or less, acuminate, yellowish, about 20; petals snowy white, an inch wide, 5 inches long, acuminate about 20, filaments white, 2 inches shorter than the petals, anthers sulphur yellow; style 9 inches long, $\frac{1}{4}$ inch thick, white; 25 spreading slender white stigmata three-fourths inch long; fruit light crimson, 3 inches in diameter, 5 in length, with about 20 sepaloïd apple green scales, forming a pretty color-contrast, epidermis an eighth of an inch thick, pulp white, filled with about 3,000 small black seeds (fruit bought in Tehuacan market for 6 cents, 28 Je 1902). Plant rather light green, the acute ribs narrowly margined with brown, 1-2 mm wide or less on either side. Pitahaya or pitahaya of the Indians. States of Puebla and Oaxaca, Mexico (Orcutt 2710, 2711).

Plants 20 cents to \$1.00 each.

CEREUS TRIGONUS Haw.

West Indies.

CEREUS TRINITATENSIS Lem.

CEREUS TUBEROSUS Pos.

CEREUS UNDULATUS H. Dresd.

CEREUS VERSCHAFFELTII Hge.

CEREUS VIRENS P DC.

Subgenus **LEPIDOCEREUS** E. Tall cylindrical branching plants with the floriferous and sterile areolae bearing similar spines; flower tube short, stigmas white, embryo curved.

CEREUS BAVOSUS Weber.

Erect, rarely branching, 8-12 or more stems from the same root, 10 or more feet high, 4 inches in diameter; ribs 9, slightly obtuse with sharply defined intervals;

areolae an inch apart on the older stems; radial spines 15, $\frac{1}{4}$ - $\frac{1}{2}$ inch long, the lower ones the longer, on the old growth all stout and about $\frac{1}{2}$ inch long; central spines 4-6, the upper one-eighth inch long or more, the lowest often 3 inches long, deflexed, twisted, flattened or carinate. Flower 2 inches across, including the ovary 4 inches long; petals white, obtuse, $1\frac{1}{2}$ inches long, the 16 stigmata, style and anthers pale yellow, filaments white; style 2 inches long. Fruit said to be red, 4 inches long, with black seeds; immature fruit with about 130 woolly areolae with capillary spines in the axils of obsolete scales or tubercles. State of Puebla, Mexico (Orcutt 2635). Called 'cardon' by the Indians, perhaps erroneously.

Plants \$1.00 to \$5.00 each.

CEREUS CANDELABRUM Web.

Aborescent, 25 feet high, trunk 1-2 feet in diameter, branching freely 3-5 feet from the ground, producing often 50 erect growing stems in candelabra form shading an area greater in diameter than the height of the tree. Branches a foot in diameter, 9-10 obtuse ribs with areolae $1\frac{1}{2}$ inch apart, when young, and densely tomentose at the base of spines; the older areolae but slightly tomentose, the bases of the spines often in close contact; spines ashy, bulbous at base, flattened or angular, strong; the central 2 inches long 7-9 radials, usually 3 laterally disposed on each side and one below the central, and more rarely 1-2 shorter radials above; spines mostly deciduous on the trunk and older branches, the persistent areolae often enormously enlarged to a height and diameter of 1-2 inches with 10-20 formidable subulate spines, the longest 3 inches or more long. Flower white, much resembling that of *C. Pringlei*; fruit ripens in the middle of May, dull red, 3 inches long, 2 and $2\frac{1}{2}$ in greater and lesser diameter, pulp purplish, sweet, edible, but valued less than the pitilla and other cactus fruits. About 30 triangular scales, bearing in the axils densely woolly areolae with 35 or more slender, bristly, straight, white spines $\frac{1}{4}$ - $\frac{1}{2}$ inch long, form the armament of the fruit—the spiny areolae easily detached (or deciduous?) at maturity. Fruit said to be used in making a pleasant drink and the seeds also utilized. The erect growth of the numerous branches and the bright glaucous color renders this giant cactus everywhere conspicuous. State of Oaxaca, Mexico (Orcutt 2676). Known to the Indians as the 'cardon'.

Plants 50 cents to \$5 each.

CEREUS GIGANTEUS Engelm.

The 'Suarro' or giant cactus of Arizona and Sonora, 25-60 feet high, 1-2 in diameter, thickest about the lower third where generally the 2 or 3 alternate or sometimes opposite branches start, and from thence slightly taper toward the summit. Stems and branches marked by superficial transverse furrows, indicating, as it seems, the annual periods of growth, forming rings of 4-8 inches in height. Branches unequal, and always of less

height than the main stem, mostly 5-6 feet long, with 12-18 ribs.

Plants under 2 feet high, \$1.00 each.

CEREUS ORCUTTII K Br.

"Stems erect, branching, bright green, reaching a height of 3 m and a diameter of 15 cm, with hard woody center; ribs 14-18, about 1 cm high; areolae round, about 6 mm in diameter and about half that distance apart, densely covered with short, light gray wool; spines all slender, spreading, yellowish brown, irregularly 3-seriate; radials 12-20, about 12 mm long, deficient above; intermediates about 10, one-third to more than twice longer, less spreading, one of the upper spines of this row usually stouter and darker, porrect, often reaching a length of 7 cm; centrals about 5, porrect-spreading a little longer than the intermediates; flowers greenish brown, darker outside, diurnal, about 4 cm entire length; petals short apiculate; ovary densely covered with short scales, almost completely concealed by thick, rounded tufts of yellowish wool, in which are embedded dark brown bristles 4-6 mm long; stamens lining the upper half of the tube; style tips acute; fruit not known."—Katharine Brandegee, Zoe, 5:3 (je 1900).

Near Rosario, Baja California. Densely covered with bright yellowish brown spines; fruit the 'size of an orange'; called pitalla dulce.

CEREUS PRINGLEI S. Watson.

The Cardon is the giant cactus of Lower California and Sonora, where it forms forests, attaining a height of 20 to 35 feet. The ribs are usually 13, and it differs from the giant cactus of Arizona (*Cereus giganteus*) in that the spine bearing areolae on the ribs are connected by wooly grooves. The trunk is often 3 to 4 feet in diameter; the older portions of the branches usually quite thornless. The dead wood is used for fuel, but otherwise this mammoth production of the desert seems to be without use.

Plants \$1.00 each.

CEREUS THURBERI Engelm.

The Pitahaya Dulce is an abundant species in Sonora and portions of Lower California, also said to occur in southern Arizona. It grows from 5 to 20 feet high, many stems 6 to 10 inches in diameter from the same base, bearing greenish or reddish white flowers followed by large luscious fruit, rather too sweet it is said for northern palates. It was named in honor of George Thurber, a widely renowned botanist.

Plants 50 cents to \$3.00 each.

Subgenus **PILOCEREUS** E. "Tall, cyl-

indric, mostly unbranched; upper flower-bearing portion with more crowded areolae and longer, denser, thinner bristles or hairy spines; flowers short; seeds as in *Eucereus*."—E.

PILOCEREUS ALBISPINUS Ruml.

Foerster, handb cact, ed 2, 649.

KS nat pflzf III (6a) 180; Mon 187.

Cereus albispinus S obs bot 5 (1822); HD ed 2,

45. Pf en 85. Foerster 385. Lab 341.

Cereus crenulatus S HD ed 2, 45. Pf en 85 F 382. S obs bot 6 (1822).

Cereus crenatus Lab 341.

Cereus octagonus et *decagonus* Hort. Pf en 85.

Cereus acromelas Otto Ind cact hort Berol 1833 fide Pf en 84 Curacao.

Variety **CRENATUS** Hort.

PILOCEREUS COERULESCENS Lem.

Pilocereus andryanus Cels.

Cereus aethiops Haw phil mag 1830, 109.

Cereus mendory Hort fide Pf en 85.

Cereus coerulescens S HD 335. Pf en 85.

Pilocereus glaucescens Lab in part.

PILOCEREUS CELSIANUS Lem.

Lem cat Cels; Rev hort 1862, 428.

Salm-Dyck cact HD ed 2, 40, 185.

Foerster handb cact ed 2, 653.

Labouret Monograph 276.

K Schumann nat pflzf III (6a) 186; Mon 179.

Pilocereus fossulatus Lab rev hort iv sr 4, 25 (1855). Lem rev hort 1862, 418. F 660.

Croucher Gard chron 1873, 983 f.

Pilocereus foveolatus Lab cat Cels 1858, non Lemaire.

Pilocereus Williamsii Lem rev hort, 1862, 428.

Pilocereus Bruennowii et Kängleri Haage jr ex Foerster handb cact ed 2, 651, 671.

Variety **LANGUINOS** OR Salm

BRUENNOWII Karl Schumann.

GRACILIOR KS.

WILLIAMSII KS All Bolivia.

PILOCEREUS CHRYSACANTHUS Web.

Tehuacan, Puebla, Mexico.

Pilocereus chrysomallus Lem. is *Cephalocereus chrysomallus* fide KS.

Pilocereus columna-traiani F. is *Cephalocereus columna-traiani* fide KS.

PILOCEREUS COMETES Mittl.

Foerster handb cact ed 2, 357.

KS nat pflzf III (6a) 180; Mon 190.

Cereus cometes Schied AGZ 8:339.

Pilocereus jubatus S 1842, 24; ed 2, 40, 183.

Foerster 356; ed 2, 671. Lab 28

Lem rev hort 1862, 427.

Cereus flavicomus S ed 2, 46, 202. F 387.

Labouret, Monogr 347 (1853).

Pilocereus flavicomus Ruml. F ed 2, 657.

Pilocereus auratus Lab Gruson cat.

"San Louis Potosi."

PILOCEREUS DANTWITZII Hge.

Haage, Gard chron 1873 17 f 1.

Van Houtte in Flore des Serr 13:33 t 2163.

Foerster handb cact ed 2, 657 f.

KS nat pfzf III (6a) 180; Mon 194.

Seitz?

?Cactus lanatus HBK nov gen et sp 6:68

?Cereus lanatus DC prodr 3:464.

Pilocereus haagei Poselger ms. Peru

PILOCEREUS DIVARICATUS Lem.

PILOCEREUS ERYTHROCEPHALUS KS.

KS Mon 195. Argentine Republic.

PILOCEREUS EXERENS KS.

KS nat pfzf III (6a) 181; MfK 4:65; Mon 184 f 39.

Cereus exerens Linke ex Pfen 99; Web dict 280.

Cereus virens Pfen 99:—"C. erectus simplex 5 angularis; sinubus acutis, tandem planis; costis rotundatis; areolis subremotis, fulvis, vix prominentibus, lanuginosis; aculeis 4-5 subulatis fulvis brevissimis deorsum spectantibus, centrali horizontali fusco rigido."

Foerster 387. S 47. Lab 359 (non DC).

Cereus affinis Hort Berol, Pfen 99.

Cereus warmingii KS Fl Br 204.

Cereus articulatus Hort non Pfeiffer.

Cereus tilophorus Pf AGZ 3:380; en 100.

Cereus sublanatus S 333; Pfen 100; Lab 360.

Foerster handb cact 40, ed 2, 687.

Pilocereus Houlettianus Lem non houlettii.

Pilocereus oligogonus Foerster cat Sencke; handb cact ed 2, 677. Lem rev hort 1862, 428.

Pilocereus virens Lem Ill hort 1866, misc 20.

Mathss MfK 2:39 f.

We quote Schumann in above synonymy who calls it a Brazilian, while Pfeiffer says Mexico!

PILOCEREUS FIMBRIATUS Lem.

PILOCEREUS FULVICEPS Web.

KS Mon 176.

Pilocereus Hoppenstedtii Web in part fide KS.

Tehuacan, Puebla, Mexico.

PILOCEREUS GOUNELLEI Web.

PILOCEREUS HERMENTIANUS L-C.

Lem et Cons Ill hort XIII t 469.

Foerster handb cact ed 2, 666.

KS Mon 186.

Cereus hermentianus Monv Ill hort VI misc 1850. Lem Rev hort 186, 410.

PILOCEREUS HOPPENSTEDTII Web.

Weber in cat Pfersdorff 1864.

Foerster handb cact ed 2, 667.

KS MfK 4:80; Mon 177.

Cephalocereus hoppenstedtii KS nat pfzf III (6a) 181.

Pilocereus hogendorpii Reg in Gartenflora, 1859, 220 (non hogendorpii).

Pilocereus lateralis Weber.

Viejo is the Mexican name for this unique plant, the name signifying an old man, while Pilocereus Houlettii is called

vieja—the old woman—the one bearing an edible fruit, the other said by the natives to bear no fruit. El Viejo grows 15 to 20 feet high, rarely branching except from injuries sustained; of equal size at the top and bottom but of an enlarged diameter between. Ribs 19-25, obtuse, intervals very shallow, the number of ribs increasing with age by bifurcation and new ones appearing above the forks. Areolae one-quarter inch apart, small, young plants bearing 30 or more slender flexuous white spines ¼-9 inches long; spines at length deciduous or nearly so, the ribs often with a continuous woody ridge enclosing the areolae. Our illustration well shows the beauty of a young plant, but in no way depicts the mature growth; erect, the top slightly bent, and ornamented with a mass of whitish wool which continues on one side a third of the way down—the lower portion yellow from age. States of Oaxaca and Puebla, Mexico (Orcutt 2705).

CEREUS HOULETTII.

Pilocereus houlettii (non houlettianus) Lem rev hort 1862, 428 f 38-41; cact 63 f 5, 6.

Foerster handb cact ed 2, 668 f 89-90.

Pilocereus foersteri Lem Ill hort 13 sub t 472.

Pilocereus Marschalleckianus Zeiss cat.

Pilocereus leucocephalus Poselger AGZ 1853, 126:—"Caule subsimplici glauco-viridi 12-15 pedes alto diametro 4-5 pollicari octogono, areolis subimmersis lanatis, aculeis exterioribus 10-12, centrali uno pollicari suberecto. Plantae flores progenerunt apice lana alba longa densa velantur, quae ex uno latere densior apparet. Flores pollicares subcampanulati externe e fusco rubicundi interne pallide-rubri. Perigonii tubus squamis glabris instructis. Prope Horcasitas."

Jalapa, Vera Cruz, Mexico.

PILOCERUS LANUGINOSUS Ruml.

Pilocereus lateribarbatum Ruml, is

Cephalocereus columna-trajani fide KS.

Pilocereus militaris Hort, is chrysomallus.

PILOCEREUS MORITZIANUS L-C.

CEREUS PALMERI Engelm.

"Stems branching, 3 or 4 angled, 12-15 dm high; spines in greenish-brown bunches; fruit greenish-yellow, its areolae bearing 5-8 stout spines. Type, Palmer 70 of 1869 in hb Mo bot gard. Sonora."—Coulter, Cont Na hb 3:401.

In Harv univ bot gard plants under this name were plainly Schottii, and Europeans treat it as a synonym of that species.

PILOCEREUS PENTAEDROPHORUS

Cons.

PILOCEREUS POLYGONUS KS.

PILOCEREUS POLYLOPHUS S.

PILOCEREUS ROYENII Ruml.

PILOCEREUS RUSSELLIANUS Ruml

CEREUS SARGENTIANUS Orcutt.

PILOCEREUS SCHLUMBERGERI Web.

CEREUS SCHOTTII Engelm.

Stems 8-10 from the same base, 4-10 feet

high, 4-5 inches in diameter, ribs 4-7, areolae distant; spines on sterile part short, stout, 4-6 radials and 1 central; the spines on fertile part 1-4 inches long, pendulous, forming a reddish-gray beard, in which the flowers and small fruit are nearly hidden. Seeds large, with hooked cotyledons. Sonora.

Variety *AUSTRALIS* K. Brandegee.

"Stems more slender and upright than the northern forms; ribs in the fertile ends, often as many as 10; areolae smaller, and more distant, and the long spines commonly fewer and stouter; abortive spine or gland (?) below the acute base of areolae more conspicuous."—Katharine Brandegee, *Zoe* 5:4.

Near Guaymas, Sonora (Orcutt).

PILOCEREUS SCOPARIUS Pos.

"*Arborescens ramosus* 20-25 pedes altus, truncum diametro 2-3 pollicari. Ramis juniores nondum florentes 12-15 costati, costis obtusis crenulatis, areolis 8-12 lin. inter se distantibus nudis subprominentibus, aculeis radiantibus 5, centrali uno valido pollicari. Ramis senioribus flores producentes tenuiores 20-25 costati, costis humilioribus obtusioribus et multo magis confertis, areolis confertissimis, aculeis exterioribus 5-7; 10-12 lin. longis setiformibus brunneis, centrali uno. Flores rarissimi parvi subcampanulati rubicundi. Propela Soledad.—AGZ 1853, 126.

CEREUS SENILIS Salm.

Is *Cephalocereus senilis* Pf.

PILOCEREUS STRICTUS Ruml.

PILOCEREUS TETETZO Web.

PILOCEREUS URBANIANUS KS.

Pilocereus Vellozi Lem, is *Cephalocereus melocactus* fide KS.

PILOCEREUS VERHEINEI Ruml.

CEREUS WEBERI Coulter.

"Plant about 10 m high, with a regular candelabra form of branching (2 main branches each producing near the base 2 other branches, all ascending), branches and main stem of same diameter, angled and glaucous; areolae 3-5 cm apart; spines stout, bulbous at base; radials 10 or 11, 2-5 cm long; central solitary, 6-10 cm long, laterally compressed, sometimes a little deflexed; flowers lateral, white, 8-11 cm long; fruit as large as a small orange, covered with small scales bearing axillary wool and spines. Type, Weber, material in hb Mo bot gard. 'A few miles south of Tehuacan', Puebla, Mexico."—Coulter, *Cont Na* hb 3:410.

Plants \$1.00 to \$5.00 each.

Subgenus *ECHINOCEREUS* E. "Low and usually cespitose plants, mostly with numerous oval or cylindric heads, short flowers, green stigmas, and spiny fruit; seeds subglobose, covered with confluent tubercles; embryo straight, with very short cotyledons.

CEREUS ACIFER Otto.

Echinocereus acifer Lem cact 57.

Echinocereus durangensis Fox ex Fed 2, 799.

CEREUS BERLANDIERI E.

Echinocereus berlandieri Lem cact 56.

KS nat 185; Mon 256.

Stems 1½-6 inches long, an inch thick, bearing sweet-scented purple flowers 2-4 inches in diameter; a native of southern Texas and Mexico.

Plants 20 cents to \$1.00 each.

CEREUS BRANDEGEI Coulter.

Caespitose, often 2 feet or more across, consisting of few to many cylindrical heads mostly 6 or 8 inches high, 1½-2 in diameter, with 8 or 9 interrupted, strongly tuberculate ribs. The young spines frequently tinged with brilliant magenta, the older spines variable in color, often of an ivory white with centrals of a deep magenta—making a very handsome color-effect. "Spines at first variegated, dark and reddish, becoming more or less ashy-black; radials 10-16, rigid, terete, radiant, mostly uniform, 8-12 mm long; centrals almost always 4, very stout and prominent, 3-4 cm long, cruciate, conspicuously angled and compressed, sometimes twisted, the lowest usually the most flattened and sword-like (2-3 mm broad); flowers red, 4-5 cm long, with conspicuous woolly and spine-bearing areolae over the ovary and lower part of the calyx. Type in hb Brandegee, El Campo Allamand and San Gregorio, Baja California."—Coulter, *Cont U S Nat* hb 3:389 (1 Ap 1896).

This has much the same aspect as *Cereus Engelmanni*, with similar variations in the color of the spines, and bears a similar edible fruit.

Plants 50 cents to \$5 each.

CEREUS CAESPITOSUS L.

CEREUS CHLORANTHUS E.

Plants 20 cents to \$1.00 each.

CEREUS CINERASCENS P DC.

CEREUS CTENOIDES E.

CEREUS DASYACANTHUS E.

Echinocereus degandii Lebut cat.

Echinocereus dasyacanthus Lem cact 57.

Plant 5-12 inches high, densely covered with numberless delicately colored spines, and bearing large showy orange yellow flowers. El Paso, Texas, and Mexico.

Plants 50 cents to \$1.00 each.

Variety *NEO MEXICANUS* Coulter.

"Differs in the remote areolae (1.5 cm apart), fewer spines (11 radials and 4 centrals), which are much stouter, 10-12 mm long, radiating, scarcely (if at all) pectinate, and larger seed (1.5 mm in diameter). Type, Wright 36 in lb Mo bot gard. Southeastern New Mexico."—Coulter, *Cont Na* hb 3:584.

CEREUS DUBIUS E.

Echinocereus dubius Fed 2, 787 KS mon 276.

Plants 50 cents to \$5.00 each.

CEREUS EHRENBERGII Pfeiffer.

Plants 50 cents each.

CEREUS ENGELMANNI Parry.

Engelmann's cushion cactus. Heads several (sometimes, though rarely, a hundred,) 4 to 12 inches high, cylindric or ovate, with 11 to 13 ribs bearing bunches of about 13 pale radiating spines, and about 4 darker (yellow,

brown or black), stout and angular, straight or curved central spines, 1 to 3 inches long. Flowers very numerous, bright magenta, often 4 inches across, followed by delicious fruits, with much the same flavor of a strawberry, red, pulpy, filled with black seeds. Utah, California, Baja California and Arizona.

Plants 50 cents to \$1 each; fine clusters up to \$25.

CEREUS ENNEACANTHUS E.

Plants 50 cents to \$2.00 each.

CEREUS FENDLERI E.

Bot mag t 6533; Weber dict 278.

Echinocereus fendleri F ed 2, 801.

A queer irregular caespitose plant of Arizona, New Mexico and Sonora, rarely more than 12 heads in a cluster, stems 3-4 inches in diameter and about 6 inches high, distinguished by the one usually black central spine, which often curves upward. Flowers magenta colored.

Plants 50 cents; clusters up to \$50 each.

CEREUS GLOMERATUS E., is *C. Maritimus* Jones.

CEREUS KNIPPELIANUS Orcutt.

Echinocereus knippelianus Liebn.

MK 5:159, 170; KS mon 223 f 47.

E. liebnerianus 'Carp' Balt cact jour 2:262.

CEREUS LEONENSIS Orcutt.

Echinocereus leonensis Mathis.

CEREUS LONGISETUS E.

Echinocereus longisetus Lem cact 57.

Is viridifloruside Orcutt rev 32.

CEREUS MAMILLATUS Hge.

"Stem simple or branching at apex, erect, dark green, 5-7.5 cm in diameter, ribs 5-7, obtuse, with acute intervals, woolly through the whole length on account of the concentric areolae; spines 7-9, short (4-6 mm) and conical, rigid, grayish (younger ones purplish-black, the central scarcely distinct from the rest); flower brownish purple, slender-tubular, 3-5 cm long; fruit globular and spiny. Type unknown. From San Luis Fotosi southwest throughout Mexico. The stem is often covered with a woody crust, and the woolly concentric areolae are often double. It is said to be frequently used for hedges in southern Mexico."—Coulter, Cont Na hb 3:339. *Cereus gemmatus* Zucc ex Pfr Enum 96.

CEREUS MARITIMUS M. E. Jones.

"Caespitose, heads 5-20 in a bunch, which is often 2-3 feet in diameter and a foot high; each plant cylindrical, oboate or in small specimens almost round, 1½-4 inches long, three-fourths to 1½ wide; principal spines 4, straight, angled and somewhat twisted at base, 1-1½ inches long, beneath these are 8-10 very short spines which are either straight or hooked; spines light brown, except when young, then red at base, springing from a very short but copious wool; flowers light yellow, about 1½ inches long and wide; petals oblanceolate or obovate, rounded, margin irregular; ovary obovate, sessile or short stalked, covered with bunches of white or yellow, often

hooked, short spines and crisped wool; fruit not mature. Encenada, Baja California."—Jones, Am naturalist 17:973 (S 1833).

Cereus giomeratus et flaviflorus E. C. sanborgianus? *C. maritimus* Coulter, in part.

Plants 50 cents to \$3 each; fine clusters up to \$100.

CEREUS MOJAVENSIS Engelm.

Plants \$1.00 to \$20.00 each.

CEREUS PACIFICUS E.

Cereus phoeniceus var. *pacificus* Engelm, MS.

"Plant caespitose, 1-4 feet in diameter, few to 500 short stems (6-9 inches long and 2-2½ inches in diameter) in each, forming dense oval cushions; stems with 10-12 obtuse ribs, shallow intervals, and an equal number of internal ligneous fibers; radial spines 1-12 and of an average length of one-fourth inch, the 4 central spines larger, three-fourths to 1 inch long, slender, white; flower an inch across, including the ovary 1½ inches long, the oblong spatulate sepals bright red with a broad purplish mid vein; ovary and fruit with 25-30 spiny areolae; fruit fleshy with numerous small seed; stamens slender, as long as sepals; anthers small, red; style three-fourths inch long, stigmata 6-8, greenish."—Or W 2:46 (Je 1886).

Type locality. near Todos Santos bay, Lower California.

Plants \$1 to \$5 each.

CEREUS PECTINATUS E.

Plants 20 cents to \$1.00 each.

Variety **CENTRALIS** Coulter.

"Plant 6-8 cm high; centrals usually 4, the lowest very short (3-4 mm) and correct, the upper 2 or 3 as long as the radials (sometimes longer), and recurved upward. Type, Wilcox of 1894 in Na hb. Arizona, near Fort Huachaca."—Coulter, Cont Na hb 3:386.

CEREUS POLYACANTHUS Engelm.

Echinocereus polyacanthus F ed 2, 790 f.

Cereus lecanus Hooker bot mag t 4417; Hems 543; Weber dict 278.

Echinocereus lecanus Lem cact 57; F ed 2, 828.

Cereus multicostatus Cels cat.

Cereus pleigonus Lab mon 317.

\$1 to \$10 each.

CEREUS POSELGERIANUS A. Lke.

Echinocereus poselgerianus A Lke AGZ 1857, 239; F ed 2, 773; KS nat 185; mon 257 (non pos-ri).

CEREUS PROCUMBENS E.

Plants 20 cents to \$1.00 each.

CEREUS RIGIDISSIMUS Engelm.

Cereus pectinatus, var? *rigidissimus* E Am ac pr 3:279; Mexican boundary R, 31; collected writings 136, 195.

Echinocereus candicans of catalogs.

The Rainbow Cactus of Southern Arizona and Sonora is noted for the beautiful and varied coloring of the all radiating

and interlocking, extremely rigid and acute spines, the latest ones of each season being rose-colored, and the earliest ones a pale yellowish, thus forming variegated rings around the stems. Flowers $2\frac{1}{2}$ -3 inches high, 2 or 3 in diameter.

Plants 20 cents to \$1.00 each.

CEREUS ROEMERI E.

CEREUS ROEITERI E.

CEREUS STRAMINEUS Engelm.

CEREUS SUBINERMIS Hem.

CEREUS VIRIDIFLORUS Engelm.

The Green-flowered Cereus of the Rocky Mountains is especially beautiful on account of the red, purple and white spines with which the plant is covered. Flowers numerous, quite large and showy, light-yellowish-green, very hardy and easily grown.

Plants ten to fifty cents each, fine clusters \$1.

Genus **CLEISTOCACTUS** Lemaire.

C. baumanni Lem in Ill Hort viii Misc 35; Cact 59, based on *Cereus tweedii* Bot Mag t 4493.

C. coulbrinus Lem in Ill Hort viii Misc 35;

Cact 60, is *Cereus coulbrinus*.

C. rhodacanthus Lem in Ill Hort viii Misc 35; Cact 61; is *Echinopsis rhodacantha*.

Genus **CONSOLEA** Lemaire.

C. catacantha Lem Rev Hort (1862) 174; Cact 91; is *Opuntia catacantha*.

C. ferox Lem Rev Hort (1862) 174; Cact 91; is *Opuntia ferox*.

C. leucacantha Lem Rev Hort (1862) 174; Cact 91; is *Opuntia leucacantha*.

C. rubescens Lem, Rev Hort ix Misc 26 (18 2); Cact 50; is *Opuntia rubescens*.

C. spinosissima Lem, Rev Hort ix Misc 62; Cact 91; is *Opuntia spinosissima*.

Genus **CORYPHANTHA** Lemaire.

Based on the subgenus *Coryphantha* Engelm., of *Mammillaria*, and 24 species and one variety named, without descriptions, in *Les Cactees*, 34-35. *C. acanthostephus*, *aulacothele*, *calcarata*, *clava*, *cornifera*, *elephantidens*, *erecta*, *lehmanni*, *loricata*, *macromeris*, *ottonis*, *pycnacantha*, *raphidacantha*, *scheeri*, *schlechtendalii*, and *sulcolanata* are presumably based on species of *Mammillaria* of the same names. *C. daimonoceras* is probably *M. scolymoides*. *C. conspicua*, *Engelmanni*, *glandulifera*, *het romorella*, *Hookeri*, and *subarata* are nomina nuda. *C. brevissima*, *exsuccans*, *impexcoma*, and *Nuttallii* are names credited to Lemaire in Foester (Handb ed 2). *C. anastracantha* is named by Lemaire as a variety of *raphidacantha*. *C. glandulifera* and *heterophylla* Lem. in *Index Kewensis*, are evidently errors.

Genus **ECHINOCACTUS** Link & Otto.

"Flowers about as long as wide. Ovary covered with sepoid scales, naked or woolly in their axils. Fruit succulent or sometimes dry, covered with persistent calyx-scales, sometimes enveloped in copious wool, and usually crowned with the persistent remnants of the flower. Seed

obliquely obovate, black. Embryo curved over the small albumen: cotyledons parallel to the sides of the seed.—Mostly large, sometimes gigantic, globose or depressed, or ovate, or rarely subcylindric, simple or very rarely cespitose; bunches of spines on the more or less vertical ribs. Flowers contiguous to and above the spines, on the latest growth of the plant, often from the nascent woolly areolae and therefore more or less vertical, open only in sunlight."—E. *Echinocactus acutangulus* Zucc, is corynodes.

E. abrocentrus Stiebn. ?

E. ACANTHION Salm-Dyck

"Caulis globoso late viridi, costis numerosissimis (35-40) valde compressis parum undulatis ad pulvillos inflatis, pulvillis confertis junioribus albido-velutinis, aculeis superioribus 3 appianatis intermedio validissimo, cum centralibus 2 subulatis bifarie patentibus, basi stramineis superne fulvido-brunneis, inferioribus 8 multo gracilioribus patentibus albidis. Caulis robustus, validus, diametro quadripollicari et ultra, aculeis tectus pollicem ad sesquipollicem longis. Unica hucusque species est in hacce Sectione aculeis centralibus duobus. Flores ignoti."—HD ed 2, 161, 31.

ECHINOCACTUS ACUTISSIMUS O-D.

ECHINOCACTUS ALBATUS Dietr.

ECHINOCACTUS ALTEOLENS KS.

ECHINOCACTUS AMBIGUUS Hildm.

ECHINOCACTUS ANFRACTUOSUS Mart.

ECHINOCACTUS ARRIGENS L-O.

ECHINOCACTUS ASTERIAS Zucc.

Is *Astrophytum myrtilloides*.

ECHINOCACTUS BEGUINII Web.

ECHINOCACTUS BICOLOR Gal.

Near San Luis Potosi, Mexico.

Variety **SCHOTTII** Engelmann.

50c to \$2 each.

Echinocactus bolansis Runge, is bicolor.

ECHINOCACTUS BREVIHAMATUS E.

ECHINOCACTUS CALIFORNICUS Mon.

ECHINOCACTUS CAPRICORNUS Dietr

ECHINOCACTUS CASTANEOIDES Cels.

Echinocactus castanensis Hott, is bicolor.

ECHINOCACTUS CENTETERIUS Lem.

ECHINOCACTUS CERATITES Otto.

ECHINOCACTUS CHILENSIS Hildm.

ECHINOCACTUS CHRYSACANTHION KS.

ECHINOCACTUS CHRYSACANTHUS O.

Globose to cylindrical, with about 18 ribs and 10 flexuous annulated central spines 2 inches long, and 4 to many slender white radial spines. Flowers satiny yellow, more rarely crimson. Cedros Island.

\$1 to \$10 each.

ECHINOCACTUS CONCINNUS Monv.**ECHINOCACTUS COPTONOGONUS** Lm.

Near San Luis Potosi, Mexico.
Plants 50 cents to \$2.00 each.

Variety **MAJOR** alm-Dyck.

\$1 to \$3 each.

ECHINOCACTUS CORNIGERUS DC.

Near San Luis Potosi, Mexico.
Plants 20 cents to \$1.00 each.

ECHINOCACTUS CORYNODES Otto.

State of Rio Grande do Sul, Brasil.

ECHINOCACTUS COXII KS.**ECHINOCACTUS CRISPATUS** DC.**ECHINOCACTUS CUMINGII** Hopff.

Bolivia, South America.

ECHINOCACTUS CURVISPINUS Colla.**ECHINOCACTUS CYLINDRACEUS** E.

Plants 20 cents to \$25.00 each.

ECHINOCACTUS DENUDATUS L-O.

Brazil, South America.

ECHINOCACTUS DICHROACANTHUS Mart.**ECHINOCACTUS DURANGENSIS** Rge.**ECHINOCACTUS EBENACANTHUS** Monv.**ECHINOCACTUS ECHIDNA** P D-C.**ECHINOCACTUS ECHINOIDES** Lem.

Bolivia, South America.

ECHINOCACTUS EHRENBERGII Pl.**ECHINOCACTUS ELECTRACANTHUS** Lem.

Plants \$2.00 to \$5.00 each.

Echinocactus ellipticus Lem, is bicolor.

ECHINOCACTUS EMORYI Engelm.

Cylindrical, rarely exceeding 2 feet in diameter and 6 feet in height; ribs sharp, usually tuberculate and 21 in number; radials 5 or more, usually 8, stout, annulated, terete, reddish, yellowish, white or ashy, commonly straight or curved inward, 1-2 inches long; the 1 central straight or more or less curved downward, 2-3 inches long, otherwise like the radials.

Gila Bend, Arizona, southward to near Guaymas, Sonora (Orcutt 2578, 2605).

\$1 to \$15 each.

Echinocactus equitans Scheidw, is horizontal.

ECHINOCACTUS ERECTOCENTRUS C.

See to \$1

ECHINOCACTUS ERINACEUS Lem.

State of Rio Grande do Sul, Brasil.

ECHINOCACTUS EXCULPTUS Otto.**ECHINOCACTUS FALCONERI** Orcutt.

Plant cylindrical in age, 9-12 inches in diameter, usually under 2 feet high, light apple green in color, with a withered appearance (perhaps not normal); ribs tuberculate, acute, spirally inclined (hence called caracola, "snail", or biznaga caracola), usually 13, to rarely 17, intervals narrow and deep; radial spines 10 or less, grayish white, flattened, flexuous, 1-2½ inches long and laterally disposed; central spines 7, stout, strongly annulated, reddish brown, the 3 upper and 3 lower of about equal length, divergent, 1-3 inches long, terete or slightly angled, straight;

the longest central erect, straight, flattened or channelled above, ¼ inch broad or less, varying from 1 to 6 inches in length sometimes on the same plant, uniformly about ½ inch at the tip turned downward at right angles with the main portion of the spine, forming a short hook. Named in honor of William Falconer. Type, Orcutt, No. 2603:—Batamotal, Sonora, Mexico.

Flower and fruit will be described later, but resemble those of *E. Wislizeni*, with which the plant has perhaps hitherto been confounded.

\$2 to \$20 each.

ECHINOCACTUS FLAVOVIRENS

Scheidw.

Tehuacan, Puebla, Mexico.

ECHINOCACTUS FORDII Orcutt.

"G obose, 6 inches or more in diameter, with about 18 tuberculated narrow ribs closely set with clusters of stout ashy gray spines, 4 central, annulated, the longest 1¼ inches long, and hooked; 2 slender spines above with about 14 divergent radials; flower an inch across, about 12 rose purple petals in 2 series, 9 greenish stigmata, style tinged with red, filaments red at top and yellow at base, anthers orange yellow. Near Lagoon Head, Baja California. Named for Lyman M. Ford, of San Diego, who has taken a great interest in cacti. Apparently the same plant was distributed in 1884, from near San Quintin Bay, as a form of *E. peninsulæ*."—Orcutt Rev 81; 56 (nomen).

ECHINOCACTUS GIBBOSUS P DC.

Argentine Republic.

ECHINOCACTUS GLADIATUS S.**ECHINOCACTUS GLAUCUS** KS.**ECHINOCACTUS GEISSEI** Pos.**ECHINOCACTUS GRANDICORNIS**

Lem.

ECHINOCACTUS GRUSONII Hildm.**ECHINOCACTUS HAEMATACANTHUS**

Monv.

Tehuacan, Puebla, Mexico.

ECHINOCACTUS HASELBERGII F

Hge sr.

Brazil, South America.

ECHINOCACTUS HASTATUS Hpffr.**ECHINOCACTUS HAYNEI** Otto.**ECHINOCACTUS HETEROCHROMUS**

Web.

ECHINOCACTUS HEXAEDROPHORUS Lem.

Near San Luis Potosi, Mexico.

ECHINOCACTUS HILCENSIS Hildm.**ECHINOCACTUS HORIZONTHALONIUS** Lem

Near San Luis Potosi, Mexico.

20c to \$1

ECHINOCACTUS HORRIPILUS Lem.**ECHINOCACTUS HUMILIS** R A Phil.**ECHINOCACTUS HYPTIACANTHUS**

Lem.

ECHINOCACTUS INGENS Zucc.

Plant 2-5 feet high, 1-2 in diameter, simple, or occasionally proliferous, forming enormous masses as much as 10 feet in diameter! Ribs 15-32, often bifurcate, acute, tuberculate-interrupted, areolae 1 inch long, an inch apart, or, in old plants, forming a continuous woolly ridge along the ribs, the depressed top densely to-

mentose, enveloping the flowers and fruit. Spines all stout, annulated, straight, the 4 cent als of nearly equal length, $1\frac{1}{4}$ inch long, divergent, the radials three-fourths inch long or less, 3-4 above and 3 below the centrals—sometimes 2 or more additional radials laterally disposed. Flower 2 inches across, 1 and three-fourths long; petals about 10, acute, $\frac{1}{4}$ inch broad, canary yellow, tipped with a tinge of rose; about 30 long narrow acute sepals and scales on the ovary with woolly axis. Anthers, filaments and style rich orange yellow; stigmata 4, $\frac{1}{4}$ inch long, spreading, style three-fourths inch long; anthers small, filaments short. Flowers deeply imbedded in the dense copious wool an inch long that fills the depressed top of the plant. Plant dark apple green, young plants especially decorated with broad horizontal bands of maroon on the ribs, zebra-like or the areolae on the ribs margined with bands of maroon. This is one of the largest of the viznaga plants, used in making 'dulces.' State of Chihuahua, Mexico (Orcutt 237). Carloads of these plants are said to be annually used in the native confectionery shops.

Mrs. Anna B. Nickels mentions a single plant sent to Europe that weighed four tons! Dr. C. C. Parry cites the woolly or silk-like substance produced so abundantly at its depressed summit, as collected and employed for stuffing pillows, and Don Louis Eschauzier complains of having had to pick spines out of beds made of this material. Ribs said to vary from 20 to 60 in number. Greatest recorded height 9 feet, diameter $9\frac{1}{2}$ feet.

ECHINOCACTUS INTERTEXTUS Em.

ECHINOCACTUS JOHNSONII Engelm.

Johnson's hedgehog cactus was named for J. E. Johnson, an early Mormon naturalist, who discovered it about S.

George in southern Utah. It is a rare and handsome plant, 4 to 7 inches high, oval, 3 to 5 inches in diameter, densely covered with stout reddish-gray spines—turning deep red when wet. The flower is about $2\frac{1}{4}$ inches broad, of a rose purple normally, but some plants which opened their flowers while packed in a box away from the light leave light yellowish-green petals marked with deep maroon at base. Anthers pale primrose yellow; filaments $\frac{1}{2}$ inch long, the inner ones white, outer ones reddish. Growing in out-of-the-way desert places in Nevada, Arizona, and California, it costs much trouble to secure this beautiful species.

ECHINOCACTUS JUSSIEUI Monv.

ECHINOCACTUS KRAUSEI Hildm.

ECHINOCACTUS KUNZEI F.

ECHINOCACTUS LAMELLOSUS Dietr.

ECHINOCACTUS LECONTEI Engelm.

Plant 3-4 feet high, about one-third that in diameter, clavate; flower 2 inches long,

lemon yellow. Type locality on the lower parts of the Gila and Colorado rivers, and in Sonora. The Mohave and Colorado Desert plants, usually referred to this species, seem to me distinct. This now seems to me distinct from either *E. Wislizeni* or *E. cylindraceus*.

Our colored portrait fairly well represents a young plant from Arizona, but does not show the distinguishing characteristics.

ECHINOCACTUS LENINGHAUSII KS.
Brazil, South America.

ECHINOCACTUS LEUCACANTHUS Zucc.

ECHINOCACTUS LIMITUS Engelm.

Is virides ens.

ECHINOCACTUS LONGIHAMATUS Gal.

ECHINOCACTUS LOPHOTHELE S.

ECHINOCACTUS McDOWELLII Rebut.

ECHINOCACTUS MACRODISCUS Mart.

Near San Luis Potosi, Mexico.

ECHINOCACTUS MALLETIANUS Lem.

ECHINOCACTUS MARGINATUS S.

Bolivia, South America.

ECHINOCACTUS MATHSSONII Berge.

ECHINOCACTUS MEGALOTHELOS Seicke.

Paraguay Republic, South America.

ECHINOCACTUS MONVILLEI Lem.

Paraguay Republic, South America.

ECHINOCACTUS MICROMERIS Weber.

Weber, Eios dict 804. K Br Zoe 5:5. Mamillaria micromeris E. Epithelantha micromeris Weber.

ECHINOCACTUS MICROSPERMUS Web.

Argentine Republic.

ECHINOCACTUS MINUSCULUS Web.

Argentine Republic.

ECHINOCACTUS MITIS R A Phil.

ECHINOCACTUS MULTICOSTATUS Hildm.

ECHINOCACTUS MULLORUS Hook.

ECHINOCACTUS MURICATUS Otto.
Brazil, South America.

ECHINOCACTUS MUTABILIS F.
Peru, South America.

ECHINOCACTUS NAPINUS R A Phil.

ECHINOCACTUS NETRELIANUS Monv.

ECHINOCACTUS NIGRICANS Dietr.

ECHINOCACTUS OBVALLATUS P DC.

ECHINOCACTUS OCCULTUS R A Phil.
Chile, South America.

ECHINOCACTUS ODIERI Lem.

ECHINOCACTUS OLIGACANTHUS S.

ECHINOCACTUS ORCUTTII Engelm.

"Heads cylindrical, 10-18 inches in diameter in the middle, growing single or ameter and 2-3½ feet high, sometimes often caespitose, more rarely proliferous at base, with 13 when young, to usually 20 or 22 obtuse tuberculate ribs and a woolly, spineless, depressed top; spines stout, reddish, straight or recurved, all annulated, usually 9 radiating and 4 stouter central ones; flowers deep dull crimson with greenish or lighter colored margins to the

petals, 2 inches long, otherwise as in *E. viridescens*; stigmata green, 16-20; fruit pulpy, crimson, scaly, with numerous small seeds."—Or W 2 :46 (Je 1886).

Type locality: Palm valley, Lower California.

Plants \$1 each; clusters \$1 for each head.

ECHINOCACTUS ORNATUS P DC.

ECHINOCACTUS OTTONIS L-O.

Brazil, South America.

ECHINOCACTUS PAMPEANUS Spegazz.

ECHINOCACTUS PAPYRACANTHUS E.

ECHINOCACTUS PARRYI E.

ECHINOCACTUS PENINSULAE Eng.

Globose to cylindrical, rarely over 18 inches in diameter, rarely attaining a height of 8 feet; the 12-21 compressed tuberculated ribs set with clusters of dull red spines; centra's 7, stout, the stoutest not rarely 4-6 inches long and $\frac{1}{4}$ inch broad, hooked.

\$1 to \$3 each.

ECHINOCACTUS PENTACANTHUS Lem.

Near San Luis Potosi, Mexico.

ECHINOCACTUS PEPINIANUS Lem.

ECHINOCACTUS PFEIFFERI Zucc.

ECHINOCACTUS PHILIPPI K.S.

ECHINOCACTUS PHYLLACANTHUS Mart.

ECHINOCACTUS PRYMATOTHELOS Pos.

ECHINOCACTUS PILOUS Gal.

Near San Luis Potosi, Mexico.

ECHINOCACTUS PLACENTIFORMIS K.S.

ECHINOCACTUS POLYANCISTRUS EB

The Hermit cactus, so-called because it is rare to find more than one in a place, is a strikingly beautiful cactus which I have seen only on the Mohave desert in its wild state. The largest plant I have seen is 18 inches high and 4 inches in diameter; each tubercle bears three to seven hooked, round, brownish-pink spines, with which are interspersed fewer ivory white spines, not hooked, very pleasing in contrast. Flower over 2 inches long, of equal width, petals bright magenta, green at base, filaments and stigmata green, anthers white. They were once catalogued at \$15 apiece, and are still rare in collections, unfortunately seldom long surviving transplanting from their native sands. Too much moisture soon proves fatal.

ECHINOCACTUS POLYCEPHALUS E.

Heads many from a single base, $\frac{1}{2}$ -2 $\frac{1}{2}$ feet high, globose to cylindric, ribs 13-21, acute: circular areolae bearing 8-12 stout compressed annulated curved reddish gray spines, all radial, or 4 stouter central ones; flowers enveloped in a mass of dense white wool, $1\frac{1}{2}$ inches long, petals about 30, lance-linear, yellow; about 100

rigid dark pointed sepals upon the ovary, hidden in the wool, those of the tube similar and equally numerous; stigmas 8-11, linear; fruit dry, full of angular wrinkled and minutely tuberculate seeds 4 mm long. Gravelly soil on the Mohave and Colorado deserts, in California, flowering in F, fruiting in Mr.

ECHINOCACTUS POTTSII S.

ECHINOCACTUS PUMILUS Lem.

ECHINOCACTUS RECURVUS L-O.

Caxaca, Mexico.

ECHINOCACTUS RINCONADENSIS Pos.

ECHINOCACTUS ROBUSTUS L-G.

Tehuacan, Puebla, Mexico.

ECHINOCACTUS SAGLIONIS Cels.

Argentine Republic.

ECHINOCACTUS SAUSSIERI Web.

ECHINOCACTUS SCHICKENDANTZII Web.

Argentine Republic.

ECHINOCACTUS SCHILINZKYANUS F Hge jr.

Paraguay Republic. South America.

ECHINOCACTUS SCHUMANNIANUS Nic.

Paraguay Republic. South America.

ECHINOCACTUS SCHEERII Sm-Dyk.

ECHINOCACTUS SCOPA L-O.

Brazil, South America.

ECHINOCACTUS SELLOWII L-O.

State of Rio Grande do Sul, Brasil.

ECHINOCACTUS SENILIS R A Phil.

Chile, South America.

ECHINOCACTUS SETISPINUS E.

ECHINOCACTUS SILERI Engelm.

ECHINOCACTUS SIMPSONI Engelm.

Hedgehog Cactus of Colorado; the spines, ranging from white through shades of straw, yellow and brown, nearly hide the plant; flowers shell-pink to bright rose in color.

Plants 15 cents to \$1.00 each.

Variety **MINOR** Engelm.

Button or Snake Cactus: spines arranged in beautiful star-shaped clusters; flowers pale rose.

Plants 25 to 50 cents each.

ECHINOCACTUS SINUATUS Dietr.

ECHINOCACTUS SMITHII Mueh.

Near San Luis Potosi, Mexico.

Echinocactus tetracanthus Lem, is *Sellowii*.

ECHINOCACTUS SUBMAMMULOSUS Lem.

South America.

ECHINOCACTUS SUBNIGER Pos.

ECHINOCACTUS TABULARIS Cels.

ECHINOCACTUS TETRAXIPHUS Otto.

ECHINOCACTUS TEXENSIS Hoepf.

Echinocactus tricolor Hort, is bicolor.

Echinocactus tricornis Monv, is *alteolens*

ECHINOCACTUS TRICUSPIDATUS S. Heldw.

ECHINOCACTUS TROLLIETI Rebut.

Is *unguispinus*.

ECHINOCACTUS TULENSIS Pos.

OPUNTIA MACULACANTHA F.
 OPUNTIA NIGRICANS Haw.
 OPUNTIA OCCIDENTALIS Engelm.
 OPUNTIA PHAEACANTHA Engelm.
 OPUNTIA PROCUMBENS E-B.
 OPUNTIA RAFINESQUII Engelm.
 OPUNTIA SENILIS Roezl.
 OPUNTIA TUNA Mill.
 OPUNTIA LARREYI Weber.

"Plant only 9-12 cm high, with large orbicular glaucous joints; fruit 'as large as a goose egg', juicy, pulpy, and with purple pulp; seeds small much like those of *O. ficus indica*'. Type unknown. A Mexican species, found by Dr. Weber about Queretaro, and pronounced by him the most delicious of all the fruits he had tasted. Known as 'camuessa'.—Coulter, Cont Na hb 3:423.

Opuntia lindheimeri E. is Engelmännii.
 OPUNTIA MICRODASYIS Pfeiff.
 OPUNTIA MISSOURIENSIS P DC.
 OPUNTIA MONACANTHA Haw.
 OPUNTIA TRELEASII Coulter.

"Erect, diffusely branching; joints orbicular to obovate, fleshy, with terete base, 15-25 cm long; pulvini not depressed, with long (5-cm) dense dirty-yellow bristles; leaves on young shoots 5 mm long, spreading (more than twice as long as those of basilaris and darker-red); flower and fruit not seen.—Type, growing in Mo. Bot. Gard. 1893, from collection made by Trelease in 1893. At Caliente, in the Tehachapi Mountains, California. Specimens examined: California (Trelease of 1892). This species is near *O. basilaris*, but differs in its rounder more fleshy joints (terete below), pulvini not depressed (in *O. basilaris* there is a depression for the pulvinus with a furrow on either side in the general surface), yellowish bristles, and especially in its much larger leaves.—Coulter, Cont Na hb 3:434-435.

OPUNTIA DECUMBENS S.
 OPUNTIA TOMENTOSA S.
 OPUNTIA PUBERULA Pf.
 OPUNTIA PILIFERA Web.
 OPUNTIA CRINEFERA Pf.
 OPUNTIA SCHREBERI Web.
 OPUNTIA LEUCOTRICHA P DC.
 OPUNTIA FOLIOSA S.
 OPUNTIA PECTOCORVUS Le Conte.
 OPUNTIA STRIGILUS E.
 OPUNTIA MICROSCAPPA KS.
 OPUNTIA LANCEOLATA Haw.
 OPUNTIA INERMIS P DC.
 OPUNTIA CRASSA Haw.
 OPUNTIA FILIPENDULA E.
 OPUNTIA SETISPINA E.
 OPUNTIA TENUISPINA Engelm.
 OPUNTIA PALMERI Engelm.

"Joints oval, smooth (not tuberculated), pale glaucous, 20-25 cm long by 15-20 cm broad; pulvini 2.5-3 cm apart, with pale brownish or gray persistent wool, a few very slender straw-colored bristles, and slender flattened or compressed straw-colored spines 2.5-3 cm long (5-7 on upper pulvini with some smaller additional ones, 1-3 on lower pulvini), erect or spreading, or the upper ones (from upper part of pulvinus) mostly deflexed. Type, Palmer of 1877 in hb Mo bot gard. Near St. George, Utah.—Coulter, Cont Na hb 3:423.

OPUNTIA BECKERIANA KS.
 OPUNTIA POLYANTHA Haw.

OPUNTIA RUBRIFOLIA Engelm.

"Prostrate, with thick ovate joints 12-15 cm long by 10 cm broad, not tuberculated; leaves spreading, somewhat recurved, reddish, 8-10 mm long; pulvini 2-2.5 cm apart, with brownish-gray persistent wool and numerous yellowish bristles (especially on the upper edge); spines often twisted, 2.5-6 cm long, often a few additional smaller ones, all deflexed (almost appressed); flowers and fruit unknown. Type, Palmer 3 in hb Mo bot gard. St. George, Utah.—Coulter, Cont Na hb 3:424.

OPUNTIA FUSCOATRA E.
 OPUNTIA TORTISPINA E-B.
 OPUNTIA SPHAEROCARPA E-B.
 OPUNTIA RHODANTHA KS.
 OPUNTIA XANTHOSTEMMA KS.
 OPUNTIA HYSTRICINA E-B.
 OPUNTIA RUTILA Nutt.
 OPUNTIA OLIGACANTHA S.
 OPUNTIA HYPTIACANTHA Web.
 OPUNTIA STREPTACANTHA Lem.
 OPUNTIA CANDELABRAFORMIS

Mart.
 OPUNTIA TRIACANTHA P DC.
 OPUNTIA SPINULIFERA S.
 OPUNTIA ROBUSTA Wendl.
 OPUNTIA GLAUDESCENS S.
 OPUNTIA INAMOENA KS.
 OPUNTIA RUBESCENS S.
 OPUNTIA MICRODISCA Web.
 OPUNTIA AURANTIACA Gil.
 OPUNTIA SULPHUREA Gill.
 OPUNTIA QUIMIO KS.
 OPUNTIA QUIETENSIS Web.

Orders invited for delivery spring of 1903. We have not priced all varieties in stock, and have many not identified as yet and many others not verified.

By error page 16 was printed in the place of 18, hence what should appear at the end comes in the middle

Our descriptions are taken from the Review of the Cactaceæ, by C. R. Orcutt, of our firm—a work every cactus student should possess. \$5 will pay for one subscription from the first number to date, and to its completion.

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- Genus **GYMNOCALYCIUM** Pfeiffer.
G. gibbosum Pf, is *Echinocactus monvillei*.
G. reductum Pf, is *Echinocactus gibbosus*.
G. villosum F, is *Echinocactus villosus*.

Genus LEPISMIUM Pfeiffer.

The published species, as far as known, are considered as synonyms of *Rhysalis*.

Genus LEUCHTENBERGIA Fisch.
LEUCHTENBERGIA PRINCIPIS Fisch.

Genus LOPHOPHORA Coulter.
LOPHOPHORA WILLIAMSI Coulter.

See *Echinocactus williamsii*.

Genus MALACOCARPUS Salm.

Nearly all the published species are considered as synonyms of *Echinocactus*, of the same specific names.

The identity of *M. Martini* Labour (ex Foerster, *Handb Cact ed 2*, 1:454) and habitat are unknown.

Genus MAMMILLARIA Haworth.

Flowers about as long as wide; the tube campanulate or funnel-shaped. Ovary often hidden between the bases of the tubercles, as well as the erect succulent berry, naked. Seeds yellowish-brown to black, exaluminous or nearly so. Embryonics very short and straight, with extremely short cotyledons parallel to the sides of the seed—small, more or less goose or oval simple or cespitose plants, the spine-bearing areolae borne on cylindrical, oval, conic, or angular tubercles, which cover the body of the plant. Flowers form a distinct woolly or bristly areola at the base of these tubercles, fully open in sunlight, mostly only for a few hours.—E.

Subgenus **COCHEMIEA**. Plants cylindrical, usually much elongated, with watery juice, and grooved tubercles. Flowers mostly in a ring near the vertex, several times longer than broad, scarlet, tubular, slender, somewhat curved, and oblique with spreading, unequal, petaloid sepals, so making the flower apparently double as in *Cereus flagelliformis*. Stamens and style red, exserted.

MAMMILLARIA HALEI Brandegee.

"Caeseritose, stems 8-10, about a foot high, 2-3 inches in diameter, straight, covered with dark-colored straight spines; tubercles short, rounded, woolly in the axils; spines 15-25, $\frac{1}{4}$ inch long, with 3-4 of the interior ones stouter and an inch long; flowers an inch long, vertical from the axils of young tubercles, scarlet; sepals all scarlet, petaloid; anthers scarlet, filaments exserted, yellowish, stigma scarlet; fruit red, clavate, $\frac{1}{2}$ inch long; seeds smooth. A handsome species, seen only upon Magdalena and Santa Margarita Islands, where it is very abundant."—Brandegee *Cal ac pr sr 2*, 2:161, t 6.

Plants \$1.00 each.

\$1 to \$5 each.

MAMMILLARIA PONDII Greene.

"From a few inches to a foot high, sim-

ple or with a few oval or cylindrically elongated branches; growing parts tomentose; radial spines 20-30, white, slender; central 4 or 5, the longest more than an inch in length, rigid and strongly hooked, cark brown above the middle; flowers, nearly 2 inches long, bright scarlet. Near *M. Goodridgei*, and differing from it in its large size and brilliantly colored large flowers. The plants were in flower in February. The species comes from the southwestern part of Cedros Island."—Greene *Pictoria* 1:268 (20 Mr 1889).

Fruit 20 mm long, 10 mm in greater diameter, greenish, base imbedded in wool, remains of flower persistent, pulp slightly acid, greenish (May 6, 1891); seeds 0.5 mm in diameter.

MAMMILLARIA ROSEANA Bndg.

"Stems numerous from the root, spreading, curved, ascending, one-third to 2 mm long, 4 cm thick; mamillae arranged in quincunxial order, 15 mm apart, cylindrical, 12 mm long, white-woolly in the upper axils; pulvinae finely pubescent; radial spines 7-9 in number, 9-12 mm long, brown or straw colored, the single central spine 25 mm long, curved, hooked at the tip; flowers from the axils of the upper mamillae, 3 cm long; sepals and petals bright scarlet, joined into a tube, spreading at their tips, in several series; stamens and style scarlet; style branches 5-7; fruit scarlet, pyriform, 6-8 mm long; seeds black, pitted; cotyledons united, only a depressed line at their tips; albumen none.—Throughout the lower elevations of the Cape Region and northward to Calmali. This cactus is one of the most showy of Lower California. Dr. Palmer collected it at La Paz and it is No. 129 of the list from that place in *Contr. U. S. Herb.* No. 3, catalogued by Mr. Pose, for whom it is appropriately named. The stems pendent from rocks at Comodonu are sometimes 6 feet long. This species and *M. Halei* of Magdalena and Santa Margarita Islands have similar flowers, fruit and seeds. The seeds of *M. Halei* were wrongly described as smooth; they are pitted in the same manner as those of this species."—Br Zee 2:19 (Ap 1891).

MAMMILLARIA SENILIS Lodd.

MAMMILLARIA SETISPINA E.

"Cactus setispinus: fasciculate and ascending, simple or branched at base, the stems about 20 cm high and 3-6 cm in diameter, densely covered with remarkably long stout spines; tubercles short and broadly conical, with axillary wool; spines white, with black tips; radials 10-12, widely spreading, very unequal, 10-34 mm long, slender and flexuous; central spines 1-4, more rigid and much longer (20-5 mm), the upper ones straight, the lowest one longest and hooked (usually upwards) and often variously curved and twisted; fruit obovate and scarlet, 10 mm long; seeds black and pitted. Type, *Cab* 15 in *Herb. Mo. Bot. Gard.* Rocky or gravelly soil, San Julio canyon, and in the vicinity of San Borgia, Lower California."—Coulter *Cont U S Nat Hb* 3: 106 (10 Je 1894).

ECHINOCACTUS TURBINIFORMIS Pf.

ECHINOCACTUS UNCINATUS Gal.

Plants \$2.00 to \$5.00 each.

ECHINOCACTUS UNGUISPINUS Engelm

ECHINOCACTUS VILLOSUS Lem.

ECHINOCACTUS VIRIDESCENS Nutt.
The Turk's Head cactus, that occurs at San Diego, California; very variable, but usually depressed, less than a foot in diameter, with strong, annulated reddish spines; 13 to 21 ribs; fruit greenish or sometimes tinged with magenta, very sour, enclosing numerous black seeds.

ECHINOCACTUS WHIPPLEI E. & B.

Whipple's hedgehog cactus is only 2 to 5 inches high, ovate-globose, characterized by seven compressed white radial spines and four broad hooked central spines. Flower $1\frac{1}{2}$ inch long, petals and filaments pale straw color, the style and seven stigmata green.

ECHINOCACTUS WILLIAMSII Lem.

Anhalonium williamsii oerster handb 233.

Lophophora williamsii et var. *lewinii* Coulter nat hb cont 3:131.

The Mescal Button, or Turnip cactus, as it is sometimes called (which forms the type of Coulter's genus *Lophophora*) is a small spineless plant with pretty rose-colored flowers. The plant rarely exceeds 3 inches in diameter, little appearing above the surface of the ground, but when eaten it produces peculiar intoxicating effects similar to those from the use of opium, and the plant enters into certain religious rites of the Indians of the Sierra Madre mountains in Mexico. A powerful drug is prepared from the plant by chemists.

Plants 50 cents to \$2.00 each.

ECHINOCACTUS WIPPERMANNII

Mueh.

50c to \$1

ECHINOCACTUS WISLIZENI Engelm.

Variety **ALBISPINA** Tourmey.

Variety **DECIPIENS** Engelmann.

\$1 to \$15 each.

Genus ECHINOCEREUS Engelmann.

Included under the genus *Cereus*.

E. Berlandieri Lem, is *Cereus Berlandieri* E.

E. Blankii Palm, is *Cereus Blankii* Pos.
Echinocereus conglomeratus F, is *Cereus polyacanthus*.

Echinocereus leeanus Lem, is *Cereus polyacanthus*.

Echinocereus leonensis Maths, is *Cereus leonensis*.

E. Leptacanthus KS, is *Cereus leptacanthus* S.

Echinocereus Merkeri Hidm, is *Cereus Merkeri*.

Echinocereus paucispinus Lem, is *Cereus polyacanthus*.

E. procumbens Lem, is *Cereus procum-*

bens E.

E. pulchellus KS, is *Cereus pulchellus* Pf

E. Salm-Dyckianus Scheer, is *Cereus Salm-Dyckianus* Web.

E. Scheeri Lem, is *Cereus Scheeri* S.

E. subinermis S, is *Cereus subinermis*.

E. tuberosus Rumpf, is *Cereus tuberosus* Pos.

Genus ECHINOPSIS Zuccarini.

Included under the genus *Cereus*.

ECHINOPSIS AMOENISSIMA Wend.

ECHINOPSIS CATAMARCENSIS Web.

ECHINOPSIS CINNABARINA Lab.

Bolivia, South America.

ECHINOPSIS DROEGEANA Berge.

ECHINOPSIS DUCIS-PAULI F.

ECHINOPSIS EYRIESII Zucc.

20c to \$2 each.

ECHINOPSIS FORMOSA Jac.

ECHINOPSIS GEMMATA KS.

Brazil, South America.

ECHINOPSIS HUOTTHI Lab.

ECHINOPSIS KUOTTHI Schlumb.

ECHINOPSIS LAGEMANNII Dietr.

ECHINOPSIS LEUCANTHA Walp.

ECHINOPSIS MULLERI. A hybrid, of rapid growth, blooming early, and with its large satiny rose-colored flowers is justly called the finest of its class.

A hybrid form of multiplex we presume.

20c to \$1.50 each

ECHINOPSIS MULTIPLEX Zucc.

Brazil, South America.

ECHINOPSIS NIGRICANS Link.

ECHINOPSIS OBERPANDA KS.

Bolivia, South America.

ECHINOPSIS OXYGONA Zucc.

Brazil, South America.

ECHINOPSIS PENTLANDII S.

Peru, South America.

ECHINOPSIS PUDANTII Hort.

ECHINOPSIS RHODACANTHA S.

ECHINOPSIS ROHLANDII Hort.

ECHINOPSIS SARMIANA Web.

Variety **BRIDGESII** KS.

ECHINOPSIS SCHICKENDANTZII

Web.

ECHINOPSIS SIMPLEX Nietz

ECHINOPSIS TOUGARII L'Her.

ECHINOPSIS TUBIFLORA Zucc.

Variety **NIGRISPINA** KS.

Echinopsis turbinata Zucc, is *gemma* fide KS.

ECHINOPSIS VALIDA Monv.

Paraguay Republic South America.

Variety **FORBESII** R. Mey.

ECHINOPSIS WILKENSHII H. rt.

Echinopsis zuccarini (zuccariniiana) Pf, is *tubiflora* fide KS.

Unnamed plants 10c to \$1; among them a form

from Mexico at 50c to \$5 each.

Epithelantha micromeris Web, is *Mamillaria micromeris* Engelmann.

Genus EPIPHYLLUM Pfeiffer.

EPIPHYLLUM ALTENSTEINI Pfr.

EPIPHYLLUM GUEDNEYRI Houl.

EPIPHYLLUM MACKOYANUM Hort.

EPIPHYLLUM OBOVATUM E.

EPIPHYLLUM RUSSELIANUM Hook.

EPIPHYLLUM TRUNCATUM Haw.

Inch, Crab, or Lobster Cactus; a native of Brazil, popular as a house plant.

GRUSONIA CEREIFORMIS F. Rchb, is *Opuntia cereiformis* Web fide KS.

Subgenus CORYPHANTHA. Plants globose or elongated, often robust, with watery juice. Tubercles (in age) grooved on the upper side. Flowers as in Eumamillaria, but some at the extremity of the groove in the axils of young tubercles, usually near the vertex of the plant.

MAMMILLARIA ALVERSONI Hort.

The Fox-tail cactus is of robust branching habit, densely covered with long stout straight spines, usually tipped with black or black half way down, shading into red, but often pure ivory white throughout. The large rose purple flowers are quite showy. The largest of some fifty plants was a cluster of six heads measuring 3 inches in diameter and about 8 inches high.

MAMMILLARIA ARIZONICA Engelm.

Plants 25 to 50 cents each.

MAMMILLARIA COMPACTA E.

MAMMILLARIA CONOIDEA P DC.

Plants 15 cents to \$1.00 each.

MAMMILLARIA CORNIFERA P DC.

20c to \$1

MAMMILLARIA DASYACANTHA E.

Mammillaria echinus E. is radians.

MAMMILLARIA ELEPHANTIDENS Lem.

MAMMILLARIA MACROMERIS E.

Plants ten to fifty cents each.

MAMMILLARIA MISSOURIENSIS Sweet.

Star Cactus; dwarf; flowers yellow or salmon color.

MAMMILLARIA NICKELSAE K Br.

"Soon and densely caespitose, glaucous and often purplish, 4-6 cm high, hemispherical or globose; tubercles 10-12 mm long, becoming quite as broad and umbilicated; spines 14-18 all radial, slender, at first yellowish with darker tips, later all gray; lower spines 8-10 mm long, the upper one-third longer, stouter, extending into the groove and forming a fascicle, the clustered fascicles making an upright tuft at the vertex; flowers 5-7 cm in full expansion, said to be bright yellow with red center; fruit unknown. Southward from Jareado, Texas. Named for the collector, Mrs. Anna B. Nickels, and offered in catalogues as M. Nickelsii. Evidently closely related to M. sulcata Engelm."—Katherine Brandegee, Zoe, 5: 31 (ag 1900).

Mammillaria pectinata E. is radians.

MAMMILLARIA RADIANSA P DC.

MAMMILLARIA RADIOSA E.

MAMMILLARIA RECURVATA E.

Plants \$1 each; clusters \$1 for each head.

MAMMILLARIA STROBILIFORMIS Shr.

Plants 20 cents to \$25.00 each.

MAMMILLARIA SULCOLANATA Lem.

MAMMILLARIA VIVIPARA Haw.

Purple and white spines cover the entire plant; flowers bright purple, 3.5 cm long and broader when fully expanded, showy. Montana, Nebraska, Colorado, Idaho, Washington and British America

—consequently one of the most hardy species known.

MAMMILLARIA WISSMANNII Hildm.

Section G' ANDULIFERAE. Cylindrical; mammae cylindrical, long, or oval and more or less globose; grooves bearing more or less conspicuous glands, the grooves often absent in young plants, the glands sometimes in the axils or at the base of the tubercles.

MAMMILLARIA CLAVA Pf.

\$1 to \$8 each.

MAMMILLARIA DOLICHOCENTRA Lm

MAMMILLARIA ERECTA Lem.

MAMMILLARIA GLANDULIGERA Dietr.

MAMMILLARIA MACROTHELE Mart.

MAMMILLARIA OTTONIS Pf.

MAMMILLARIA SALMDYCKIANA Scheer.

MAMMILLARIA SCHEERII Muchlpf.

\$2 to \$20 each.

Subgenus DOLICOTHELE KS.

MAMMILLARIA LONGIMAMMA P SC.

MAMMILLARIA SPHAERICA S.

Subgenus LACTESCENTES. Plants depressed-globose, rarely a little elongated; juice milky; tubercles usually angular and somewhat leathery. Flowers as in Eumamillaria, but mostly small.

MAMMILLARIA ANGULARIS L-O.

MAMMILLARIA CAPUT-MEDUSAE Otto.

MAMMILLARIA FORMOSA Scheidw.

MAMMILLARIA GABBII Engelm.

Cactus gabbii Coulter, U S Na Hb cont 3:109: "Globose, 5-10 cm in diameter, simple, tubercles cylindrical, slender, 12-14 mm long, with woolly axils; radial spines about 13, 5-8 mm long, lower ones longer and stouter, especially the latest ones pectinate: the central shorter, straight and robust; flowers small, yellowish-red; fruit unknown.—Type in Herb. Mo. Bot. Gard. Among rocks, from San Ignacio to Mission San Fernando, Lower California."

Near San Quintin bay, Baja Cal. (Orcutt).

Cactus brandegei Coulter, U S Na Hb cont 3:76.

\$1 to \$5 each.

MAMMILLARIA GIGANTEA Hildm.

MAMMILLARIA GUMMIFERA E.

MAMMILLARIA HESEANA Mac Dow.

MAMMILLARIA HEYDERI Muehlenpf.

MAMMILLARIA MEIACANTHA E.

MAMMILLARIA SEMPERVIVI P DC.

MAMMILLARIA TROHARTII Hildm.

MAMMILLARIA UNCINATA Zucc.

Subgenus EUMAMILLARIA. Plants globose or elongated, with watery juice, and cylindrical or conical grooveless tubercles. Flowers borne usually in a ring

near the top of the plant, cup-shaped or expanded, as broad or broader than long. Sepals adpressed. Stamens and styles shorter than the corolla.

MAMMILLARIA ACICULARIS Lem.

MAMMILLARIA ACTINOPLEA Eh.

MAMMILLARIA ALPINA Mart.

MAMMILLARIA AMABILIS Eh.

MAMMILLARIA AMBIGUA G. Don.

MAMMILLARIA AMOENA Hopff.

MAMMILLARIA ANCISTRATA Schehl.

MAMMILLARIA ANCISTRIA Walp.

MAMMILLARIA ANDREAE Pf.

MAMMILLARIA ARGENTEA Fenn.

MAMMILLARIA ARICINTA Lem.

MAMMILLARIA ARMILLATA K Br.

"Stems somewhat attenuate, reaching 3 dm in height, 4-5 cm in diameter, usually in clusters of 3-12, from the base, often branching above; tubercles somewhat leathery in texture; conical, somewhat angled; axils setose and sparsely woolly; radial spines 9-15, 7-12 mm long, the inner half whitish or grayish; centrals 1-4, 10-20 mm long, the lower one hooked and longer, all, and the outer part of the radials dark brown, yellowish or gray; flowers 1-2 cm long, scarcely spreading, flesh color; fruit red, clavate, 1½-3 cm long; seeds coriaceous, dull black, about 1 mm long, obliquely obovate, constricted above the more slender basal portion; surface covered with minute, not closely contiguous pits, the intervening spaces minutely wrinkled; hilum basal, narrow. San Jose del Cabo, Baja California. The name is in allusion to the dark bands which encircle the plant, giving it much the appearance of a raccoon's tail."—Katharine Brandegee, Zoe, 5:7 (Je 1900).

MAMMILLARIA ASTERIAS Cels.

MAMMILLARIA ATRORUBRA Eh.

MAMMILLARIA ATROSANGUINEA Eh.

MAMMILLARIA AULACANTHA P DC.

MAMMILLARIA BADISPINA F.

MAMMILLARIA BARBATA Engelm.

MAMMILLARIA BARLOWII R-K.

MAMMILLARIA BELLATULA F.

MAMMILLARIA BERGENII Eh.

MAMMILLARIA BERGII Mig.

MAMMILLARIA BICOLOR Lehm.

Variety NIVEA KS.

MAMMILLARIA BIFURCA Dietr.

MAMMILLARIA BINOPS Hge.

MAMMILLARIA BOCASANA Pos.

This beautiful plant is covered with the fine tender hair like spines.

Near San Luis Potosi, Mexico.

Plants ten to fifty cents each.

MAMMILLARIA BREVIMAMMA Zucc.

MAMMILLARIA CANDIDA Scheidw.

MAMMILLARIA CARNEA Zucc.

MAMMILLARIA CARRETHII Rebut.

Is Pringlei.

MAMMILLARIA CONICA Haw.

MAMMILLARIA DECIPIENS Schw.

Loose tubercled small growing species with delicate & pretty yellow fls.

Plants 15 cents to \$1.00 each.

MAMMILLARIA DIOICA K. Brandg.

M. Goodridgii Engelm. (not Scheer?). small globular species, closely set with brownish or white spines, the central one curved into a hook. The delicate yellowish white flowers are succeeded by the club-shaped, scarlet berries that possess the flavor of wild-wood strawberries, and are sometimes called "hep-pitallas," the "flavina" of the Mexicans. Plants 25 to 50 cents each.

MAMMILLARIA ELEGANS DC.

\$1 to \$3 each.

MAMMILLARIA ELONGATA P DC.

MAMMILLARIA FLAVA E.

MAMMILLARIA LAVOVIRENS S.

MAMMILLARIA FORDII Orcutt.

(Ovate, 2 inches in diameter, and about 3 high, rarely branching at base; tubercles obtuse, ¼ inch across, short, 12 radial spines cinereous, ½ -¼ inch long, the solitary central black and hooked, ¼ inch long; flower an inch long, white with about 9 petals and 9 sepals—the latter with purplish midvein on the back, 6 stigmata of a brownish-green style greenish, filaments white and anthers orange yellow; flowers in July; Baja California on the west coast, collected for L. M. Ford, 1899. Near M. Goodridgii

MAMMILLARIA FELIGINOSA S.

MAMMILLARIA GLOCHIDIATA Mart.

MAMMILLARIA GOODRIDGII Scheer.

MAMMILLARIA GRACILIS Ff.

MAMMILLARIA GRAHAMII E.

1 to 3 inches high, subglobose, simple or branching from the base; tubercles ovate, axils naked; radial spines in one series, 20 to 30 in number, 3 to 6 lines long, rigid and whitish, surrounding a stouter and longer hooked brown one. Flowers small, nearly 1 inch wide, reddish; berry oval, green, with small pitted seeds. The well-known "Arizona Strawberry" or small Fishhook Cactus of N. M., Arizona and Utah, rare in California.

MAMMILLARIA GRUSONII Runge.

MAMMILLARIA HAAGEANA Pl.

MAMMILLARIA HUMBOLDTII Eh.

MAMMILLARIA INCURVA Scheidw.

MAMMILLARIA INTRICATA Otto.

MAMMILLARIA LASIACANTHA E.

Variety DENUDATA Engelmann.

Mammillaria leona Pos. is Pottsi.

MAMMILLARIA LESAUNIERI Rebut.

MAMMILLARIA MALENII S.

MAMMILLARIA MAINAE Br.

"Hem spherical to ovate, simple, or sparingly branched from the base, reaching a height of 10cm; tubercles glaucous, somewhat incurved, cylindric, becoming conical, 1-1½ cm long, often bright red in the naked axils; radial spines, 10-15, yellowish, becoming white, slender, scarcely pungent, 6-10 mm long, the upper rather the shorter; centrals 1-2, both hooked, rarely an additional upper one; lower

central, usually the only one, nearly twice as long as the radials, stout and strongly hooked, p. nect. crown below, blackish above, somewhat twisted; the second central when present, widely divaricate, ascending, weaker and shorter; flowers in crown at upper part of stem, pinkish-white or flesh-color, 1-1½ cm in length, including the ovary; style whitish, deeply, few-lobed fruit red, globular, to obovate, shorter than the tubercles; seeds dull-black, pericarp, a little more than 1 mm long, obovate, with narrowly-linear basal hilum. Named for the collector, Mrs. F. B. Main, who found it in Sonora, south of Nogales. It has been offered by dealers as *M. Galvestii* Scheid., to which it is not at all related. (Katharine Brandegee, Zoc. 5 1 (ag. 1909).

MAMMILLARIA MELALEUCA Karw.

MAMMILLARIA MELANOCESTRA For.

MAMMILLARIA MICROMERIS E.

mushroom cactus, found in Texas, resembles a silk-covered button, and can be handled without gloves. The delicate, starry net work of snowy-white spines over the green plant gives it a very beautiful appearance.

Variety **GREGGII** Engelm.

MAMMILLARIA MINIMA Reichb.

Mexican species, cylindrical, forming numerous heads around the base, which readily take root when detached. About 20 slender white spines radiate from the center of each hemispherical tubercle, enveloping the plant like a bit of delicate lace; no central spine.

MAMMILLARIA MUTABILIS Scheidw.

MAMMILLARIA NICHOLSONII Mac Dow.

MAMMILLARIA NIVOSA Link.

Mammillaria nogalensis Runge cat, is *recurvata* E.

MAMMILLARIA OBSCURA Hildm.

MAMMILLARIA OLIVIAE Orcutt.

Globose to ovate, 2½ inches in diameter, 3 inches high, simple or rarely branched or cespitose; tubercles ovate, ¼ inch long, axils naked; radials 25-35, snowy white, slender, rigid, ¼ inch long, upper ones shorter; centrals 1-3, the lower one only an eighth of an inch long, erect, rigid, white or tipped with chocolate brown; the two upper centrals slender white or rarely tipped with brown, 3 times as long, closely resembling the radials; lower central rarely longer, but occasionally even ½ inch long, slender or flexuous, brownish and hooked upward—more frequently seen on the lower outer tubercles of young plants; fruit scarlet, clavate, with small seeds. Type, Orcutt, No. 2562.—Of snowy whiteness from its numerous interlacing spines; dedicated to the author's life partner, who has accompanied him in thought on the mountains and deserts of Arizona, where this beautiful plant occurs.

Plants \$1.00 each.

MAMMILLARIA PARKINSONII Eh.

MAMMILLARIA PERBELLA Hildm.

Mammillaria petersonii Hildm, is *Heesiana*.

Mammillaria Pfeifferi Booth, is *rhodantha*.

MAMMILLARIA PHELLOSPERMA E.

Plants \$1 each; clusters \$1 for each head.

MAMMILLARIA PHYMATOTHELE Berg.

MAMMILLARIA PLUMOSA Web.

MAMMILLARIA POLYEDRA Mart.

MAMMILLARIA PRINGLEI K Br.

Katharine Brandegee, Zoc. 5:7, publishes this name (based on *Cactus Pringlei* Coulteri), and states that it seems to scarcely differ from *M. Carrettii*.

MAMMILLARIA PUSILLA Sweet.

MAMMILLARIA RHODANTHA L.O.

Oblong or subcylindric, 30 cm high, 7.5-10 in diameter, often bifurcate; tubercles conical, 12 mm long, 8 in diameter; with woolly axils; radial spines 16-20, bristle-like, white, the lower 8-10 mm long; central spines 6 or 7, rigid, whitish with black tip, 12 mm long; flowers rose-color, 12 mm broad; fruit 2.5 cm long, cylindrical. Mexico.

Plants 30 cents each.

MAMMILLARIA SEITZIANA Mart.

MAMMILLARIA SIMPLEX Haw.

MAMMILLARIA SPHACELATA Mart.

MAMMILLARIA SPINAUREA S.

MAMMILLARIA SPINOSSIMA Lem.

MAMMILLARIA STELLA-AURATA Mt.

MAMMILLARIA THORNBURI Orcutt.

Cylindrical, 1¼ inch in diameter, usually 2-3 inches high, erect, with 8 or 9 spiral rows of tubercles, axils naked; 13-18 slender white or brown tipped radials ¼ inch long; usually 1 slender flexuous hooked central one-fourth to three-fourths of an inch long, tipped with brown; fruit clavate, scarlet, containing minute black seeds. Tips of tubercles olive green, base and axils and sunken portion of plant tinged with purple; radials usually 13, the upper sometimes the longest, often brown nearly to the base; central occasionally brown, usually the lower half white or yellowish, often hooked upward, but often twisted and turning in every direction. Plant prolific at base, forming numerous offsets in the axils of the buried or lower tubercles; these quickly take root and usually soon sever connection with the parent, thus forming dense compact masses of old and young plants, usually 10-50—but in one, perhaps not exceptional case, I counted 110 distinct plants, in a cluster—all apparently originating from the tallest individual in the group. Occasionally a plant, from injuries sustained, becomes bifurcate or forms a number of aerial heads which remain permanently attached—but which usually form roots of their own and eventually survive the death of the parent. More than 1 central spine appears very rare, but 2 or three sometimes appear from the same small woolly areola, one or all hooked, of equal or varying length. The largest plant among over 1,000 was 1½ inch in diameter and nearly a foot high! Type, Orcutt, No. 2583.—Arizona. Curiously the same plant was found a few days earlier than by the author by Prof. J. J. Thornber, and

planted in the cactus garden of the University of Arizona, and this interesting addition to the cactus flora of the United States may therefore appropriately bear his name.

\$1 to \$5 each.

MAMMILLARIA TOALDOAE Lehm.

MAMMILLARIA UMBRINA Eh.

MAMMILLARIA VALIDA Web.

MAMMILLARIA VENUSTA K Br.

"Simple, becoming caespitose in clusters of, in extreme cases, as many as 40; heads 2-4, very rarely, in center of large clusters, 6 cm high, a little less in diameter; tubercles thick and short, concave at the end, greenish, purplish to nearly white, glaucous; axils only slightly woolly, soon marked; radial spines, 9-15, stout, 6-12 mm long; centrals typically solitary, 10-15 mm, sometimes 2 or 3, in a single specimen 4, erect-spreading, the 3 upper very short; flowers about 4 cm in diameter, rose-color, widely spreading, tube very short; petals lanceolate acute, recurved-spreading; style-branches 6, apparently rosy brown; fruit $1\frac{1}{2}$ cm long, scarlet, linear, circumscissile some distance above the base, nearly dry; seeds oblong-obovate, rather less than 1 mm long, constricted above the basal portion, which is half as long and nearly as wide as the upper; surface dull, minutely pitted, the pits much obscured by delicate intervening striae; hilum basal, large and triangular.

"Collected by Mr. T. S. Brandegee in the vicinity of San Jose del Cabo, Baja California, in Sept. 1890. (No. 540. M. Goodrich, of 'Flora of the Cape Region'), again Sept. 1893, and for the third time last year in numerous living specimens. The spines are from pure white, barely tipped with brown, to dark brown, whitish only near the base. The flowers, which appear in September, hide the whole plant, and it is of such low growth as to look like a beautiful cluster of flowers springing from the sand. The fruit appearing in winter is nearly dry and falls very readily when ripe, leaving most of the seeds in the axillary cup. It is the only circumscissile mammillaria known to me."—Katharine Brandegee, Zoe, 5:8 (Je 1900).

MAMMILLARIA VETULA Mart.

MAMMILLARIA WILCOXI Tourmey.

Usually simple, depressed-globose; 14-16 slender subulate whitish radial spines 70 mm long; solitary hooked central brownish; axils naked. Fruit (16 Oct 1896) flesh color faintly tinged with crimson, the black seeds showing through the transparent epidermis. Near Congress and Benson, Arizona (Orcutt).

MAMMILLARIA WILDII Dietr.

MAMMILLARIA WRIGHTII E.

MAMMILLARIA ZEPHYRANTHOIDES Scheidw.

Mamillopsis senilis Web, is *Mamillaria senilis* Lodd.

Genus **MELOCACTUS** De Candolle.

Globose fleshy plants 1-3 feet in diameter, regularly ribbed, ribs bearing clusters of spines, surmounted with a wooly

cylindrical cap closely set with softer spines, upon which the small tubular red or rose-colored flowers are borne. Of little value horticulturally and rarely cultivated with success. Generally found in rock or sandy dry situations in tropical America and the West Indies.

MELOCACTUS VIRIDESCENS Nutt.

Nuttall ex Teschem in J Bost Soc Nat Hist 5:293 (1845).—A synonym of *Echinocactus viridescens*.

The Melocacti are natives of the West Indies, and tropical America.

Genus **MYRTILLOCACTUS** Console.

MYRTILLOCACTUS GEOMETRIZANS C

Cereus geometrizzans Mart.

Cereus cochal Orcutt.

\$2 to \$20 each.

Genus **PELECYPHORA** Ehrenb.

PELECYPHORA ASELLIFORMIS Ehrenb.

The Hatchet cactus is a little gem from Mexico, so-called from the shape of the tubercles. It bloomed in San Diego on May day, scarce $\frac{1}{2}$ inch in length and breadth, with thirteen bright magenta colored petals and seven or eight pale lavender sepals, the four stigmata white, style and filaments tinged with purple, and anthers bright orange. The largest plant among a hundred is but little over an inch in height and diameter, and in earlier days they were literally worth their weight in gold. The flowers are open only in sunlight.

20c to \$1

Variety **PECTINATA** KS.

Genus **PHYLLOCACTUS** Link.

Epiphytall plants with spineless flattened leaf-like branches, with a prominent midrib, mostly with large showy flowers, from creamy white to the richest crimson and scarlet, produced from notches in the margins of the stems.

Readily produced by cuttings or seeds, the phyllocacti are established favorites, and hundreds of varieties have been produced by hybridization. Young growth often cylindrical, then triangular, finally assuming the flattened form.

PHYLLOCACTUS ACKERMANNI Walp.

The King cactus was taken from Mexico to England prior to 1829 by George Ackermann, and bears the most gorgeous flowers, 6 to 8 inches in diameter, the acutely pointed, wavy petals of a deep brilliant crimson, bordered at the base with bright magenta, the interior decorated with a mass of white filaments and antlers, the 11 stigmata and style also white. The plant blooms freely and may be seen in many San Diego gardens. The plant

before me is about a foot high and bears one open flower and three buds today (May 3, 1900).

PHYLLOCACTUS ACUMINATUS KS.

State of Rio de Janeiro, Brazil.

PHYLLOCACTUS ANGULIGER Lem.

PHYLLOCACTUS BIFORMIS Lab.

Honduras, Central America.

PHYLLOCACTUS CRENATUS Walp.

Honduras, Central America.

PHYLLOCACTUS HOOKERI S.

PHYLLOCACTUS KAMPMANNI Hort.

Kampmann's Case-knife cactus is a less robust plant than the King cactus, and the flowers are only about 3 inches in diameter, the petals broader in proportion, of a bright, but lighter, crimson. Filaments white, anthers canary yellow. This is a general favorite in San Diego gardens, also, producing its lovely flowers in the greatest profusion.

PHYLLOCACTUS LATIFRONS Walp.

PHYLLOCACTUS LATIFRONS Walp.

The Queen cactus is quite the giant among the Phyllocacti, the stout flattened stems 4 to 5 inches broad, deeply crenated and commonly 8 to 10 feet high. The flowers are 7 to 8 inches long, about 6 inches in diameter, the petals of a delicate, clear, creamy white, the sepals and tube of a reddish hue. Native of Mexico.

PHYLLOCACTUS PHYLLANTHOIDES

Lik.

PHYLLOCACTUS PHYLLANTHUS

Lik.

PHYLLOCACTUS RUSSELLIANUS S.

PHYLLOCACTUS STENOPETALUS S.

PHYLLOCACTUS STRICTUS Lem.

PHYLLOCACTUS THOMASIANUS KS.

PHYLLOCACTUS WRAYI Hort.

Genus **PILOCEREUS** Lemaire.

Included under the genus *Cereus*.

Tribe **OPUNTIEAE**.

Calyx tube not extending beyond the ovary; stems branched and jointed.

Genus **HARIOTA** Adans.

Adans. Fam. 2:243 (1763).

This genus is generally treated as a synonym of *Rhipsalis*, to which we refer all the species. Schumann maintains the genus as defined by De Candolle.

H. alternata Lem Hort Univ. i. t. 50, is *R. paradoxa*.

H. cassythra Cels. ex Foerst. Handb. 458, is *R. cassythra*.

H. cribrata Lem Hort iv Misc 12 (1857), is *R. saglionis*?

H. floccosa Cels. ex Foerst. Handb. 458, is *R. floccosa*.

H. funalis Cels. ex Foerst. Handb. 457, is *R. funalis*.

H. mesemtrianthemoides Lem Cact. Aliq. Nov. Desc. 39, is *R. mesembrianthemoides*.

H. pentaptera Lem ex Foerst. Handb. 453, is *R. pentaptera*.

H. prismatica Lem Hort x Misc 84 (1863), is *R. tetragona*?

H. saglionis Lem Cact. Aliq. Nov. Desc. 39, is *R. saglionis*.

HARIOTA SALICORNIOIDES DC.

Rhipsalis salicornioides Laworth, of Brazil.

Variety *BAMBUSOIDES* Weber.

HARIOTA VILLIGERA KS.

KS Fl. Br. 266: S. Paulo, Brazil.

H. clavata Web. U. S. is *R. clavata*.

Variety *Lewinii* Coult.

See *Echinocactus williamsii*.

Genus **RHIPSALIS** Gaertn.

RHIPSALIS CASSYTHA Gaertn.

RHIPSALIS SALICORNIOIDES Haw.

Schlumbergera epiphyloides Lem, is *Phyllocactus Russellianus*.

Stromatocactus Kotschubeyi Karw, is *Anhalonium sulcatum* S.

Tephrocactus andicolus Lem, is *Opuntia andicola*.

Tephrocactus aoracanthus Lem, is *Opuntia andicola* Pf.

Tephrocactus diadematus Lem, is *Opuntia diademata*.

Tephrocactus platyacanthus Lem, is *Opuntia platyacantha*.

Zygocactus Altensteinii KS, is *Epiphyllum truncatum* fide KS.

Genus **PFEIFFERA** Salm.

PFEIFFERA CEREIFORMIS Salm.

A synonym of *Rhipsalis cereiformis*.

PFEIFFERA IANTHOTHELE Web.

Gen. s. MAIPUENIA Phil.

M. POEPPIGII Weber.

M. BRACHYDELPHYS KS.

M. PHILIPPII Weber.

PTEROCACTUS KUNTZEI KS.

Rebutia minuscula KS, is *Echinocactus minusculus*.

Genus **PERESKIA** Plum.

PERESKIA ACULEATA Mill.

The Barbadoes gooseberry or Blad-apple; the leaves resemble those of the orange; much used for grafting purposes. West Indies.

PERESKIA BLEO P. DC.

PERESKIA LYCHNIDIFLORA P. DC.

PERESKIA PANAMENSIS Web.

PERESKIA TAMPICANA Web.

Genus **NOPALEA** Salm.

Erect, branching plants, with flattened elongated joints; flowers red or crimson, petals erect and slightly approaching each other at the apex, stamens longer than the corolla.

NOPALEA AUBERI Salm-Dyck.

Cuba; rapid growth; arborescent in form, and bearing numerous rose-colored flowers with exserted stamens; the branches armed with stout spines; readily grown from cuttings.

NOPALEA COCCINELLIFERA Salm.

The cochineal cactus, a native of Mexico.

NOPALEA DEJECTA Salm.

Salm-Dyck, Hort. Dyck. ed. 2, 64, 233. Cuba.

NOPALEA KARWINSKIANA S.

NOPALEA MONILIFORMIS KS.

Genus **OPUNTIA** Tournefort.

"Tube of the flower very short, cup-shaped; petals spreading or rarely erect; ovary with bristle-bearing areolae in the

axils of small terete deciduous sepals; berry succulent or sometimes dry, marked with bristly or spiny areolae, truncate with a wide umbilicus; seeds large, white, compressed, with the embryo coiled round the albumen; cotyledons large, foliaceous.—Articulated, much branched plants, of various shapes, low and prostrate or erect and shrub-like; young branches with small terete subulate ally deciduous leaves, and in their axils an areola with numerous short easily detached bristles, and, usually, stouter spines, all barbed. Flowers on the joints of the previous year, on the same areolae with the spines, mostly large, open only in sunlight. Fruit often edible, often large.—E.

Opuntia auberi Pf. is *Nopalea auberi*.
Opuntia camuessa Web. is *robusta*.
Opuntia decumana Grs. is *monacantha*.
Opuntia flavicans Lem. is *robusta*.
Opuntia maxima Hort (non Web), is *robusta*.
Opuntia stenopetala E. is *glaucescens*.

Subgenus **CYLINDROPUNTIA** E.—“Joints cylindrical, more or less tuberculate; rhaphe usually not prominent, the embryo seed not margined; embryo forming less than one circle around the more copious albumen; cotyledons inconsistent, contrary, oblique, or parallel to the sides of the seed.”—E.

OPUNTIA ACANTHOCARPA E. & B.
OPUNTIA ALCAHES Web.
OPUNTIA ANDICOLA Pfeiffer.
OPUNTIA AORACANTHA Lem.
OPUNTIA ARBORESCENS Engelm.
OPUNTIA ARBUSCULA E.
OPUNTIA AUSTRALIS Web.
OPUNTIA BERNARDINA Engelm.
OPUNTIA BIGELOVITZ Engelm.
OPUNTIA BRACHYARTHA E. & B.
OPUNTIA BRANDEGEEI KS.
OPUNTIA BULBISPINA E.
OPUNTIA CEREFORMIS Web.
OPUNTIA CHOLA A Web.
OPUNTIA CIRIBE E.
OPUNTIA CLAVARIOIDES L-O.
OPUNTIA CLAVATA E.
OPUNTIA CORRUGATA S.
OPUNTIA CURASSAVICA Mill.
OPUNTIA CYLINDRICA DC.
OPUNTIA DARWINII Hensl.
OPUNTIA DAVISHII E. & B.
OPUNTIA DIADEMATA Lem.
OPUNTIA ECHINOCARPA E. & B.
OPUNTIA EMORYI Engelm.
OPUNTIA FLOCCOSA S.
OPUNTIA FRAGILIS Haw.
OPUNTIA FULGIDA Engelm.
OPUNTIA GEISSEI R A Phil.
OPUNTIA GOLZIANA KS.
OPUNTIA GRAHAMII Engelm.
OPUNTIA GRATA R A Phil.
OPUNTIA IMBRICATA P DC.
OPUNTIA INVICTA Brandegee.
OPUNTIA KLEINIAE P DC.
OPUNTIA LEONINA H-S.
OPUNTIA LEPTOCAULIS D C.
OPUNTIA LURIDA Hort.
OPUNTIA MAMILLATA Schet.
OPUNTIA MIQUELII Monv.
OPUNTIA MOLESTA Brandegee.
OPUNTIA NIGRISPINA KS.
OPUNTIA OVATA Pf.

OPUNTIA PARISHII Orcutt.
OPUNTIA PARRYI E.
OPUNTIA PENTLANDII S.
OPUNTIA PITITACHE Web.
OPUNTIA PLATYACANTHA S.
OPUNTIA PLOEFFERI Engelm.
OPUNTIA FUCHUELLA E.
OPUNTIA PYCNACANTHA E.
Opuntia ramosissima E. is *tessellata*.
OPUNTIA ROSEA DC.
OPUNTIA ROSIFLORA KS.
OPUNTIA ROTUNDIFOLIA KS.
OPUNTIA SALMIANA Farm.
OPUNTIA SCHICKENDANIZII Web.
OPUNTIA SCHOTTII E.
OPUNTIA SERPENTINA Engelm.
OPUNTIA SPEGAZZINII Web.
OPUNTIA SEINOSISSIMA Mill.
OPUNTIA STAPELIAE P DC.
OPUNTIA SUBULATA Engelm.
OPUNTIA TARAPACANA R A Phil.
OPUNTIA TERES Cels.
OPUNTIA TESAJO Engelm.

“With very short woody stem, and growing in little clumps 3 dm or less in diameter; joints slender and not distinctly tuberculate; flowers simple, bell-shaped, yellow. Type, Gabb 26 in hb Mo bot gard. Among rocks, especially toward the west coast and in the more central portions, Lower California.”—Coulter, Cont Na hb 3-448.

OPUNTIA TESSELLATA Engelm.
OPUNTIA THURBERI E.
OPUNTIA UNICATA L-O.
OPUNTIA VERSCHAFFELTII Cels.
OPUNTIA VERSICOLOR E.
OPUNTIA VESUITA S.
OPUNTIA WHIPPLEI E. & B.

Subgenus **PLATOPUNTIA** E.—“Joints compressed; rhaphe forming a prominent bony margin around the seed; embryo completing a little more than one circle around the scanty albumen; cotyledons contrary to the sides of the seed.”—E.

OPUNTIA ANGUSTATA E. & B.
OPUNTIA ARENARIA Engelm.
OPUNTIA BASILARIS Engelm.
 Variety *RAMOSA* Parish.
OPUNTIA BRASILIENSIS Haw.
OPUNTIA CAMANCHICA E-B.
OPUNTIA CHLOROTICA Engelm.
OPUNTIA DULCIS Engelm.
OPUNTIA ENGELMANNI Sim-Dyck.
OPUNTIA FICUS-INDICA Mill.
OPUNTIA GRANDIS Hort.
OPUNTIA MACROCENTRA Engelm.
OPUNTIA URSINA Weber.

Opuntia ursina is a name given by Albert Weber to a curious and beautiful plant of the Mohave desert, advertised as the Grizzly Bear cactus. The joints are about 3 by 5 inches, densely covered with slender flexuous ivory white spines, the longest over 6 inches long, and completely hiding the plant. A cutting reminds one of the “Old Man” cactus of Mexico, but this belongs among the prickly pears—forming low wide spreading masses of interlacing snow white spines.
OPUNTIA VULGARIS Mill.